ENVIRONMENTAL ASSESSMENT OF PROPOSED WING HEADQUARTERS FACILITY AT PITTSBURGH INTERNATIONAL AIRPORT AIR RESERVE STATION, PENNSYLVANIA

Headquarters, Air Force Reserve Command
Environmental Division
255 Richard Ray Boulevard
Robins Air Force Base, Georgia 31098-1637

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Abbreviations and Acronyms

911 AW	911th Airlift Wing
ACHD	Allegheny County Health Department
ACM	asbestos containing materials
AFCEE	Air Force Center for Environmental Excellence
AFI	Air Force Instruction
AFOSH	Air Force Occupational and Environmental Safety, Fire Protection, and Health
AFPD	Air Force Policy Directive
AFRC	Air Force Reserve Command
AICUZ	Air Installation Compatible Use Zone
AMC	Air Mobility Command
AP	Accumulation point
AQCR	Air Quality Control Region
ARS	Air Reserve Station
AT/FP	antiterrorism/force protection
BAP	Base accumulation point
BR	Business Route
C&D	Construction and Demolition
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
CY	calendar year
dB	decibel
dBA	A-weighted decibel
DNL	day-night average A-weighted sound level
DOD	Department of Defense
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
EPCRA	Emergency Planning and Community Right to Know Act
ERP	Environmental Restoration Program
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Administration
FICUN	Federal Interagency Committee on Urban Noise
FONSI	Finding of No Significant Impact
ft^2	square feet
GSF	Gilpin, Weikert, and Culleoka shaley silt loams, very steep
HAZWOPER	Hazardous Waste Operations and Emergency Response
HMMP	Hazardous materials management program
HQ	Headquarters
HSWA	Hazardous and Solid Waste Amendments
IAP	International Airport
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
kV	kilovolt
LBP	lead-based paint
LEED	Leadership in Energy & Environmental Design
mBtu	million British Thermal Units
mg/m^3	milligrams per cubic meter
MSC	Medium specific concentrations
MSW	municipal solid waste
MS4	municipal separate storm sewer systems
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act

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NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NSR	New Source Review
O_3	ozone
OSHA	Occupational Safety and Health Administration
PA/SI	Preliminary Assessment/Site Inspection
PADEP	Pennsylvania Department of Environmental Protection
PAPCA	Pennsylvania Air Pollution Control Act
Pb	lead
PM_{10}	particulate matter equal to or less than 10 microns
$PM_{2.5}$	particulate matter equal to or less than 2.5 microns
POL	Petroleum, Oils and Lubricants
PPA	Pollution Prevention Act
ppm	parts per million
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SPIAQCR	Southwest Pennsylvania Intrastate Air Quality Control Region
SQG	small quantity generator
tpy	tons per year
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, or Disposal
U.S.C.	United States Code
UCB	Urban land-Culleoka complex, gently sloping
UCD	Urban land-Culleoka complex, moderately steep
UFC	Unified Facilities Criteria
USAF	United States Air Force
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VOC	volatile organic compounds
VQ	Visiting Quarters
$\mu g/m^3$	micrograms per cubic meter

COVER SHEET

ENVIRONMENTAL ASSESSMENT OF PROPOSED WING HEADQUARTERS FACILITY AT PITTSBURGH INTERNATIONAL AIRPORT AIR RESERVE STATION, PENNSYLVANIA

Responsible Agencies: U.S. Air Force (USAF), Air Force Reserve Command (AFRC), and 911th Airlift Wing (911 AW), Pittsburgh International Airport Air Reserve Station (IAP ARS), Pennsylvania.

Affected Location: Pittsburgh IAP ARS, Coraopolis Pennsylvania

Report Designation: Draft Environmental Assessment

Proposed Action: The existing Wing Headquarters (HQ) Facility (Building 316) does not meet current antiterrorism/force protection (AT/FP) guidelines for setback distances from existing roadways and parking areas. Building 316, constructed in 1975, is still in relatively good condition. However, the need for administrative space within the Wing has grown over the years and the large demand for this space has forced the base to encroach upon other existing facilities such as the Visiting Quarters.

Pittsburgh IAP ARS proposes to construct a 30,490-square foot (ft^2) Wing HQ Facility, south of the existing Consolidated Club (Building 110), and associated parking lots on the west and east-southeast sides. Coalition Avenue would be rerouted and Rocky Lane eliminated to meet AT/FP guidelines. After construction of the proposed Wing HQ Facility, Wing staff in Buildings 208 and 210 would be relocated to the proposed Wing HQ Facility and Building 316. After the Wing staff has been relocated to these facilities, Buildings 208 and 210 (each comprising 12,970 ft^2) would be demolished and the sites would be backfilled, graded, and seeded to allow for future growth. When these buildings are demolished, the backup generator outside of Building 208 and the Main Base Water Metering Facility (Building 119) would be relocated or incorporated into the proposed Wing HQ Facility.

An Environmental Assessment (EA) has been prepared to evaluate the Proposed Action and the No Action Alternative. Resources that are considered in the impact analysis are air quality, noise, safety, geological resources, water resources, infrastructure, and hazardous materials and waste management. The EA will be made available to the public upon completion.

Written comments and inquiries regarding this document should be directed to Ms. Francine Vollmer, 911 AW/MSG/CEV, Pittsburgh IAP ARS, 1100 Herman Ave, Coraopolis, PA 15108-4421.

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Project Number: JLSS 97-9001

MARCH 2005

DRAFT ENVIRONMENTAL ASSESSMENT OF PROPOSED WING HEADQUARTERS FACILITY AT PITTSBURGH INTERNATIONAL AIRPORT AIR RESERVE STATION, PENNSYLVANIA

TABLE OF CONTENTS

APPENDICES

FIGURES

TABLES

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1. Purpose of and Need for the Proposed Action

1.1 Background

The 911th Airlift Wing (911 AW) is an Air Force Reserve Command (AFRC) unit at Pittsburgh International Airport (IAP), Pennsylvania. The 911 AW is equipped with eight assigned C-130H Hercules cargo/transport aircraft. The 911 AW provides strategic, long-range airlift support to active-duty United States Air Force (USAF) and training for assigned Reservists, during peacetime, under the command and control of Headquarters (HQ) AFRC. In war, or during times of national emergency, the 911 AW is under the direction of Air Mobility Command (AMC).

In 2003, the Base Civil Engineer at Pittsburgh IAP Air Reserve Station (ARS) requested an Air Force Center for Environmental Excellence (AFCEE) Assistance Team to help develop project requirements for the siting and layout for a new Wing HQ Facility. An Assistance Team sponsored by AFCEE completed this study in August 2003. The AFCEE Assistance Team concluded that the existing Wing HQ Facility needs to be replaced to meet the current USAF mission, standards, and antiterrorism/force protection (AT/FP) requirements. Due to the lack of space and use of visiting quarters (VQ) as administrative space, it was determined that some offices had more square footage than required and some had less. The Assistance Team also concluded that if a new Wing HQ Facility is not constructed, the continued use of deteriorated existing facilities would have a negative impact on morale and recruitment.

All U.S. Department of Defense (DOD) installations are required to seek effective ways to minimize the likelihood of mass casualties from terrorist attacks against DOD personnel in the buildings in which they work and live. Pittsburgh IAP ARS has determined that it needs to make specific AT/FP upgrades to protect military and civilian personnel from a potential terrorist attack. By applying the standards provided in Unified Facilities Criteria (UFC) 4-010-01, *DOD Minimum Antiterrorism Standards for Buildings*, Pittsburgh IAP ARS would become a lesser target of opportunity for terrorists. The intent of the standards described in UFC 4-010-01 is to minimize the possibility of mass casualties in buildings or portions of buildings owned; leased; privatized; or otherwise occupied, managed, or controlled by or for the DOD.

The preparation of this Environmental Assessment (EA) has been undertaken to assess the potential environmental impacts associated with this Proposed Action. The EA addresses AFRC's Proposed Action and reasonable alternatives to the Proposed Action. It analyzes and documents potential environmental consequences associated with the proposed activities. If the analyses presented in this

EA indicate that implementation of the Proposed Action would not result in significant environmental or socioeconomic impacts, then a Finding of No Significant Impact (FONSI) will be prepared. If significant environmental issues result that cannot be mitigated to insignificant, an Environmental Impact Statement (EIS) will be required.

1.2 Purpose of and Need for the Proposed Action

The need for the Proposed Action is to rectify the shortcomings of existing facilities and to ensure the 911 AW has facilities that enable it to provide efficient and effective command and control over all functions within its assigned areas of responsibility. The proposed Wing HQ Facility is necessary to house Wing Staff and support their functions to ensure an efficient command and control of the 911 AW. The existing HQ Facility, Building 316, does not meet AT/FP guidelines for setback distances from roadways and parking areas. Building 316, constructed in 1975, is in relatively good condition. However, the need for administrative space within the Wing has grown over the years, resulting in encroachment on other functions (i.e., VQ facilities) to satisfy space requirements.[1] The use of administrative space in Buildings 208 and 210 is inadequate and these facilities have reached the end of their useful life expectancy. Pittsburgh IAP ARS proposes to demolish Buildings 208 and 210 (each comprising approximately 12,970 square feet [ft^2]) and construct a 30,490-ft^2 Wing HQ Facility.

The purpose of the Proposed Action is to meet the identified need by constructing a Wing HQ Facility for use by the 911 AW. The Wing HQ Facility provides a localized center of command for the Wing staff so that it can carry out its mission. Construction of the proposed Wing HQ Facility would also allow consolidation of HQ staff into one facility, allowing the Wing to carry out its mission more efficiently. The new HQ Facility is needed to allow proper allocation of administrative and other space among the several functions of the HQ staff.

1.3 Location of the Proposed Action

Pittsburgh IAP ARS is in the western portion of Allegheny County, Pennsylvania, approximately 15 miles west of downtown Pittsburgh (see Figure 1-1). The installation encompasses approximately 115 acres (12 acres owned and 103 acres leased) in the eastern portion of Pittsburgh IAP. The

[1] The 911 AW plans to demolish seven VQ facilities (Buildings 206, 209, 213, 216, 217, 218, and 219) and construct five new VQ facilities buildings. This approved project will occur in phases between 2007 and 2018. The project was analyzed in the *Environmental Assessment of Proposed Visiting Quarters Facilities at Pittsburgh International Airport-Air Reserve Station, Pennsylvania* (PARS 2003a).

Figure 1-1. Pittsburgh IAP ARS Location Map

911 AW is the host unit at Pittsburgh IAP ARS. Pittsburgh IAP ARS is situated within Moon Township and comprises aircraft support facilities adjacent to Pittsburgh IAP. The communities of Coraopolis, Moon, Coraopolis Heights, Carnot, Clinton, and McAlister's Crossroads surround the base (see Figure 1-1). Access to Pittsburgh IAP ARS is provided by Business Route (BR)-60. BR-60 runs adjacent to the installation along its eastern border. It serves as the link between the base and Interstate 79, approximately 8 miles to the southeast. Interstate 79 connects Pittsburgh with Erie, Pennsylvania, to the north and Charleston, West Virginia, to the south.

1.4 Summary of Key Environmental Compliance Requirements

1.4.1 National Environmental Policy Act of 1969

The National Environmental Policy Act, commonly known as NEPA, is a Federal statute requiring the identification and analysis of potential environmental impacts of proposed Federal actions before those actions are taken. NEPA established the Council on Environmental Quality (CEQ) that is charged with the development of implementing regulations and ensuring agency compliance with NEPA. CEQ regulations mandate that all Federal agencies use a systematic interdisciplinary approach to environmental planning and the evaluation of actions that might affect the environment. This process evaluates potential environmental consequences associated with a proposed action and considers alternative courses of action. The intent of NEPA is to protect, restore, or enhance the environment through well-informed Federal decisions.

The process for implementing NEPA is codified in Title 40 Code of Federal Regulations (CFR) 1500–1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.* The CEQ was established under NEPA to implement and oversee Federal policy in this process. CEQ regulations specify the following must be accomplished when preparing an EA:

- Briefly provide evidence and analysis for determining whether to prepare an EIS or a FONSI
- Aid in an agency's compliance with NEPA when an EIS is unnecessary
- Facilitate preparation of an EIS when one is necessary

Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, states that the USAF will comply with applicable Federal, state, and local environmental laws and regulations, including NEPA. The USAF's implementing regulation for NEPA is *The Environmental Impact Analysis Process (EIAP)*, 32 CFR Part 989, as amended.

1.4.2 Integration of Other Environmental Statutes and Regulations

To comply with NEPA, the planning and decision making process for actions proposed by Federal agencies involves a study of other relevant environmental statutes and regulations. The NEPA process, however, does not replace procedural or substantive requirements of other environmental statutes and regulations. It addresses them collectively in the form of an EA or EIS, which enables the decision maker to have a comprehensive view of major environmental issues and requirements associated with the Proposed Action. Under CEQ regulations, Federal agencies shall to the fullest extent possible "integrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency so that all such procedures run concurrently rather than consecutively."

This EA examines potential effects of the Proposed Action and alternatives on seven resource areas: air quality, noise, safety, geological resources, water resources, infrastructure, and hazardous materials and wastes. The following paragraphs present examples of relevant laws, regulations, and other requirements that are often considered as part of the analysis.

Air Quality

The *Clean Air Act* (CAA) establishes Federal policy to protect and enhance the quality of the nation's air resources to protect human health and the environment. The CAA requires that adequate steps be implemented to control the release of air pollutants and prevent significant deterioration in air quality. The 1990 amendments to the CAA require Federal agencies to determine the conformity of proposed actions with respect to State Implementation Plans (SIPs) for attainment of air quality goals.

The Pennsylvania Air Pollution Control Act (PAPCA), enacted on January 8, 1960, established the framework for air pollution control activities in Pennsylvania. Under the original PAPCA, the Pennsylvania Department of Environmental Protection (PADEP) implemented air pollution control programs that successfully addressed the major public health and welfare air quality concerns of the time. The 1990 Amendments to the CAA required a significant number of changes to the PAPCA to authorize PADEP to develop and implement the highly prescriptive programs and achieve the goals mandated by Congress.

Air regulations are implemented by the Allegheny County Health Department (ACHD) Division of Air Quality. Implementing air regulations are under ACHD Rules and Regulations, Article XXI, *Air Pollution Control*.

Noise

Federal Aviation Administration (FAA) Part 150, *Airport Noise Compatibility Planning,* provides guidance to measure noise levels at commercial and municipal airports and determine exposure of individuals to aircraft related noise that results from flight operations. FAA Part 150 identifies compatible and incompatible land use types (i.e., commercial, residential) with respect to noise exposure. It also provides technical assistance to airport operators, in conjunction with other local, state, and Federal authorities, to prepare and execute appropriate noise compatibility planning and implementation programs (14 CFR Part 150).

Safety

Air Force Instruction (AFI) 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, implements AFPD 91-3, *Occupational Safety and Health*, by outlining the AFOSH Program. The purpose of the AFOSH Program is to minimize loss of USAF resources and to protect USAF personnel from occupational deaths, injuries, or illnesses by managing risks. In conjunction with AFI 91-202, *USAF Mishap Prevention Program*, these standards ensure all USAF workplaces meet Federal safety and health requirements. This instruction applies to all USAF activities, including those of the AFRC.

Geological Resources

There are no Federal, state, or local laws or regulations regarding geological resources, however best management practices would be used to prevent soil erosion and sedimentation.

Water Resources

The *Clean Water Act* (CWA) of 1977 (33 United States Code [U.S.C.] 1344) and the *Water Quality Act* of 1987, 33 U.S.C. 1251, et seq., as amended) established Federal policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters and, where attainable, to achieve a level of water quality that provides for the protection and propagation of fish, shellfish, and wildlife; and recreation in and on the water.

Executive Order (EO) 11988, *Floodplain Management*, requires Federal agencies to take action to reduce the risk of flood damage; minimize the impacts of floods on human safety, health, and welfare; and restore and preserve the natural and beneficial values served by floodplains. Federal agencies are directed to consider the proximity of their actions to floodplains. Where information is unavailable, agencies are encouraged to delineate the extent of floodplains at their site.

Infrastructure

Infrastructure consists of the systems and physical structures that enable a population in a given area to sustain itself. Consideration of infrastructure is applicable to a proposed action or alternative where there might be an issue with respect to local capacities (e.g., utilities, transportation networks, energy) to provide the required support.

Hazardous Materials and Wastes

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 authorizes U.S. Environmental Protection Agency (USEPA) to respond to spills and other releases of hazardous substances to the environment, and authorizes the National Oil and Hazardous Substances Pollution Contingency Plan and also provides a Federal Superfund to respond to emergencies immediately.

The Pollution Prevention Act (PPA) of 1990 encourages manufacturers to avoid the generation of pollution by modifying equipment and processes; redesigning products; substituting raw materials; and making improvements in management techniques, training, and inventory control. EO 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements* (August 3, 1993) requires Federal agencies to comply with the provisions of the PPA and requires Federal agencies to ensure all necessary actions are taken to prevent pollution. In addition, in *Federal Register* Volume 58 Number 18 (January 29, 1993), CEQ provides guidance to Federal agencies on how to "incorporate pollution prevention principles, techniques, and mechanisms into their planning and decision making processes and to evaluate and report those efforts, as appropriate, in documents pursuant to NEPA."

The Resource Conservation and Recovery Act (RCRA) of 1976 is an amendment to the Solid Waste Disposal Act that authorizes USEPA to provide for "cradle-to-grave" management of hazardous waste and sets a framework for the management of nonhazardous municipal solid waste. With the Hazardous and Solid Waste Amendments (HSWA) of 1984, Congress targeted stricter standards for waste disposal and encouraged pollution prevention by prohibiting the land disposal of particular wastes. The HSWA amendments strengthen control of both hazardous and nonhazardous waste and emphasize the prevention of groundwater pollution.

The Superfund Amendments and Reauthorization Act (SARA) of 1986 mandates strong clean-up standards, and authorizes USEPA to use a variety of incentives to encourage settlements. Title III of SARA authorizes the Emergency Planning and Community Right to Know Act (EPCRA), which

requires facility operators with "hazardous substances" or "extremely hazardous substances" to prepare comprehensive emergency plans and to report accidental releases. EO 12856 requires Federal agencies to comply with the provisions of EPCRA.

The Toxic Substances Control Act (TSCA) of 1976 consists of four titles. Title I established requirements and authorities to identify and control toxic chemical hazards to human health and the environment. TSCA Title II provides statutory framework for "Asbestos Hazard Emergency Response," which applies only to schools. TSCA Title III, "Indoor Radon Abatement," states indoor air in U.S. buildings should be as free of radon as the outside ambient air. TSCA Title IV, "Lead Exposure Reduction," directs Federal agencies to "conduct a comprehensive program to promote safe, effective, and affordable monitoring, detection, and abatement of lead-based paint and other lead exposure hazards." Further, any Federal agency having jurisdiction over a property or facility must comply with all Federal, state, interstate, and local requirements concerning lead-based paint.

1.5 Interagency Coordination and Community Involvement

NEPA requirements help ensure that environmental information is made available to the public during the decision making process and prior to actions being taken. The premise of NEPA is that the quality of Federal decisions will be enhanced if proponents provide information to the public and involve the public in the planning process. CEQ regulations implementing NEPA state, "There shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to proposed actions. This process shall be termed scoping." The Intergovernmental Coordination Act and EO 12372, *Intergovernmental Review of Federal Programs*, require Federal agencies to cooperate with and consider state and local views in implementing a Federal proposal. AFI 32-7060 requires AFRC to implement a process known as Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), which is used for the purpose of agency coordination and implements scoping requirements.

Through the IICEP process, the AFRC notified relevant Federal, state, and local agencies of the action proposed and provided them sufficient time to make known their environmental concerns specific to the action. The IICEP process also provided AFRC the opportunity to cooperate with and consider state and local views in implementing this Federal proposal. Upon receipt, agency responses were provided to AFRC and incorporated into the analysis of potential environmental impacts performed as part of the EA. AFRC coordinated with agencies such as USEPA; U.S. Fish and Wildlife Service (USFWS); State Historic Preservation Office (SHPO); and other Federal, state, and

local agencies. Appendix A includes a copy of the IICEP letter that was mailed to the agencies for this action, the IICEP distribution list, and agency responses.

A Notice of Availability for the EA and FONSI will be published in the *Moon Star Record* and the *Allegheny Times*. This is done to solicit comments on the Proposed Action and involve the local community in the decision making process. Upon receipt, public comments provided to AFRC will be incorporated into the analysis and included in Appendix A of the EA.

1.6 Introduction to the Organization of this Document

The EA is organized into seven sections. Section 1 contains background information on Pittsburgh IAP ARS, a statement of the purpose of and need for the Proposed Action, the location of the Proposed Action, a listing of applicable regulatory requirements, and an introduction to the organization of the EA. Section 2 provides a detailed description of the Proposed Action, alternatives to the Proposed Action, a description of the No Action Alternative, a description of the decision to be made, and identification of the preferred alternative. Section 3 contains a general description of the biophysical resources and baseline conditions that potentially could be affected by the Proposed Action or the No Action Alternative. Section 4 presents an analysis of the environmental consequences. Section 5 includes an analysis of the potential cumulative impacts on Pittsburgh IAP ARS. Section 6 lists the preparers of the document. Section 7 lists the sources of information used in the preparation of the document. Appendix A of the EA includes a copy of the IICEP letter mailed to the agencies for this action, the IICEP distribution list, and agency and public comments. Appendix B includes air quality emissions calculations from the Proposed Action.

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2. Description of the Proposed Action and Alternatives

2.1 Introduction

This section describes the mission of the 911 AW, the Proposed Action, the No Action Alternative, alternatives eliminated from further discussion, and the decision to be made and identifies the preferred alternative.

2.2 Mission

It is the wartime mission of the 911 AW to provide airlift of airborne forces and their equipment and supplies, and delivery of these forces and materials by air drop, landing, or cargo extraction systems using its eight assigned C-130H "Hercules" cargo/transport aircraft. The 911 AW also provides intratheater aeromedical evacuation. During peacetime, the 911 AW is tasked with training and equipping Reservists and assigned personnel to maintain readiness to meet wartime taskings and peacetime contingencies as directed. As a key training installation within AFRC, Pittsburgh IAP ARS provides training and readiness facilities for AFRC and other DOD personnel as the need arises.

2.3 Detailed Description of the Proposed Action

Pittsburgh IAP ARS proposes to construct a 30,490-ft^2 Wing HQ Facility south of the existing Consolidated Club (Building 110) and associated parking lots on the west and east-southeast sides of the proposed HQ Facility (see Figures 2-1 through 2-3). Coalition Avenue would be rerouted and Rocky Lane eliminated to meet AT/FP guidelines. The proposed construction and demolition projects are planned for CY 2009 and CY 2010 but may occur sooner if the project is funded at an earlier date. After the construction of the proposed Wing HQ Facility, Wing staff in Buildings 208 and 210 would be relocated to the proposed Wing HQ Facility and Building 316. After the Wing staff has been relocated to these facilities, Buildings 208 and 210 (each comprising approximately 12,970 ft^2) would be demolished and the sites would be backfilled, graded, and seeded to allow for future use. When these buildings are demolished, the backup generator outside of Building 208 and the Main Base Water Metering Facility (Building 119) would require relocation or incorporation into the proposed Wing HQ Facility.

The proposed Wing HQ Facility would be a multistory building. The exterior and interior design of the new facility would follow the Installation Design Guidelines for Pittsburgh IAP ARS. This would

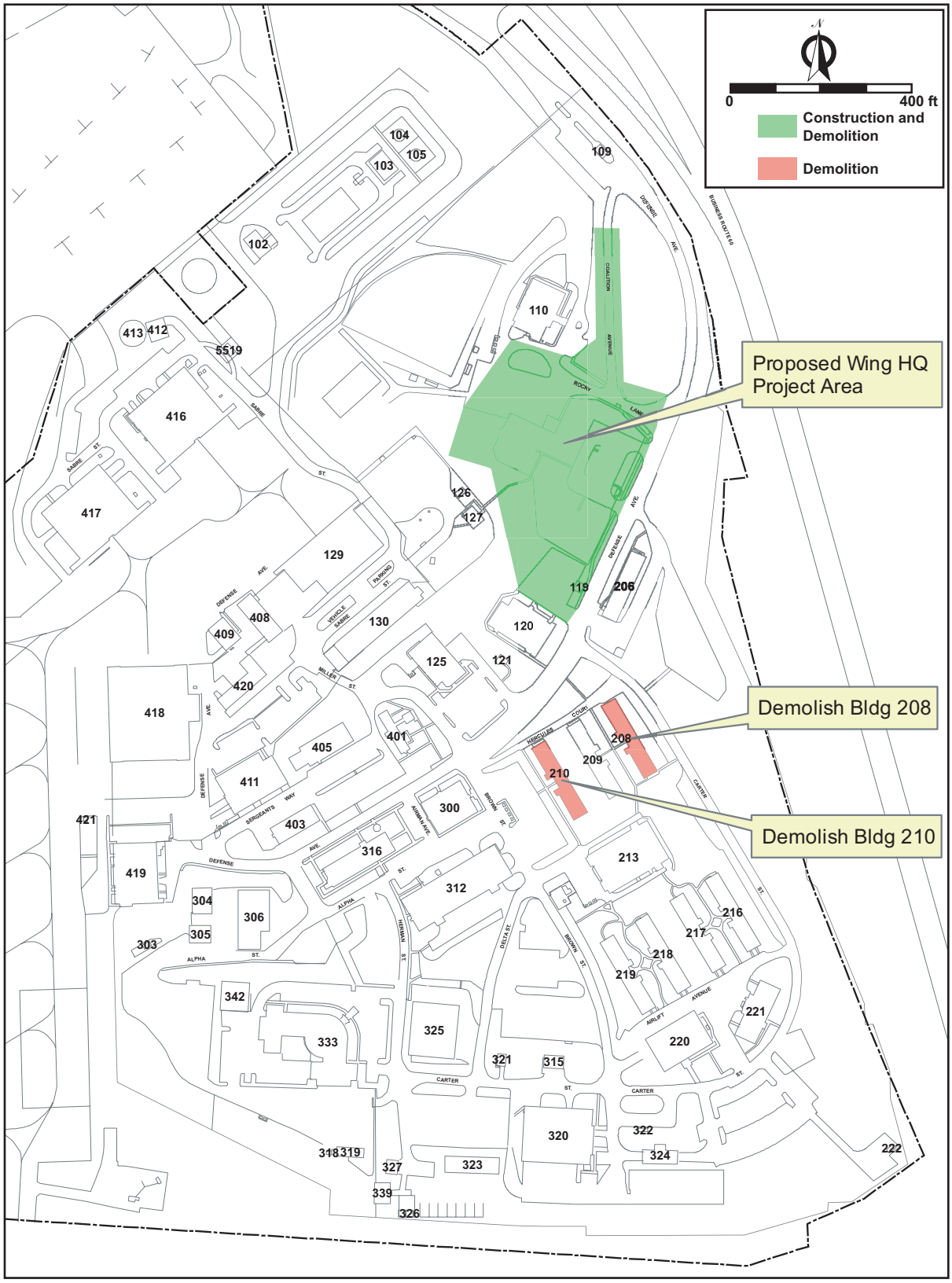

Figure 2-1. Proposed Construction and Demolition Project Locations

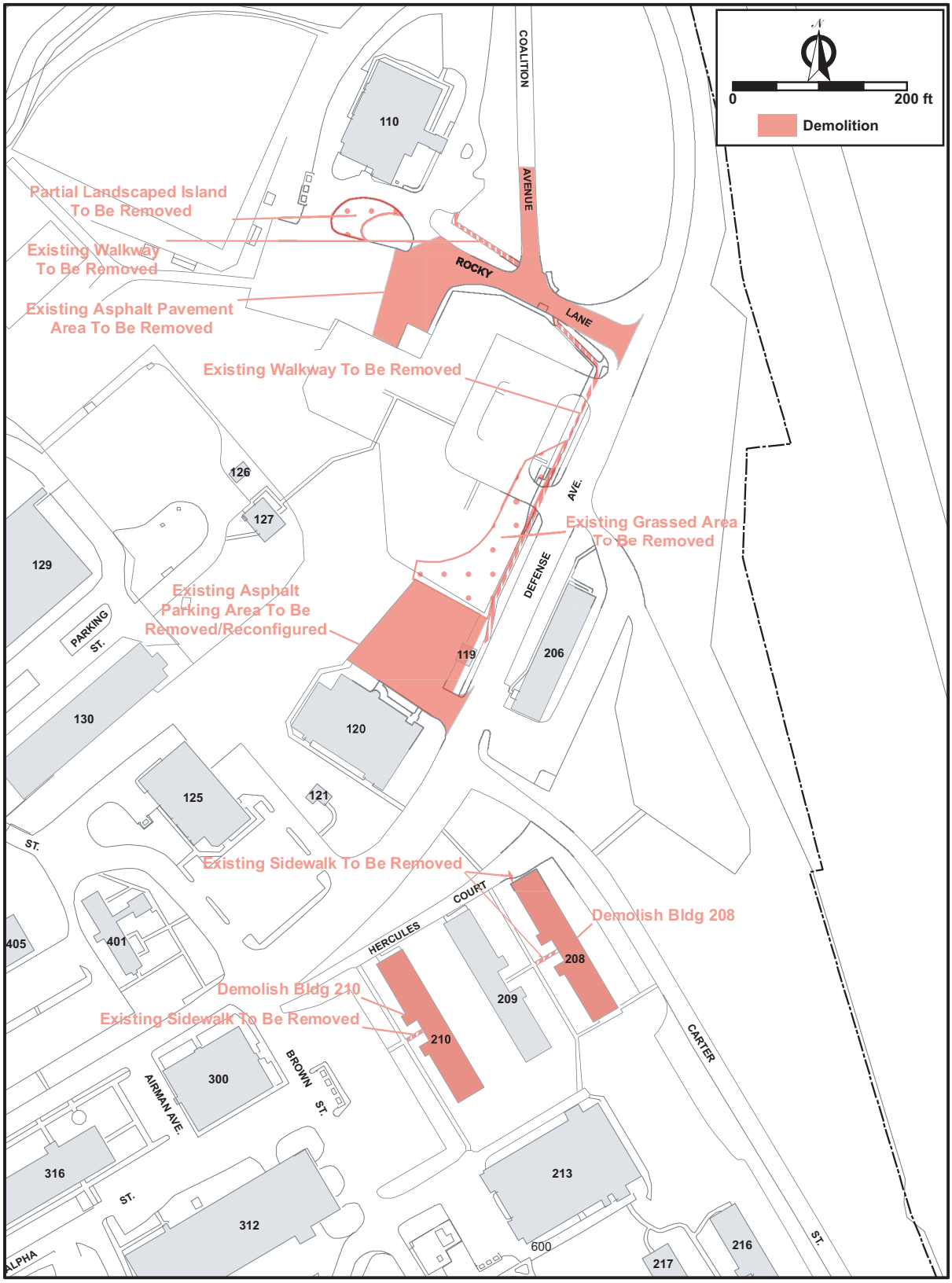

Figure 2-2. Proposed Demolition Plan

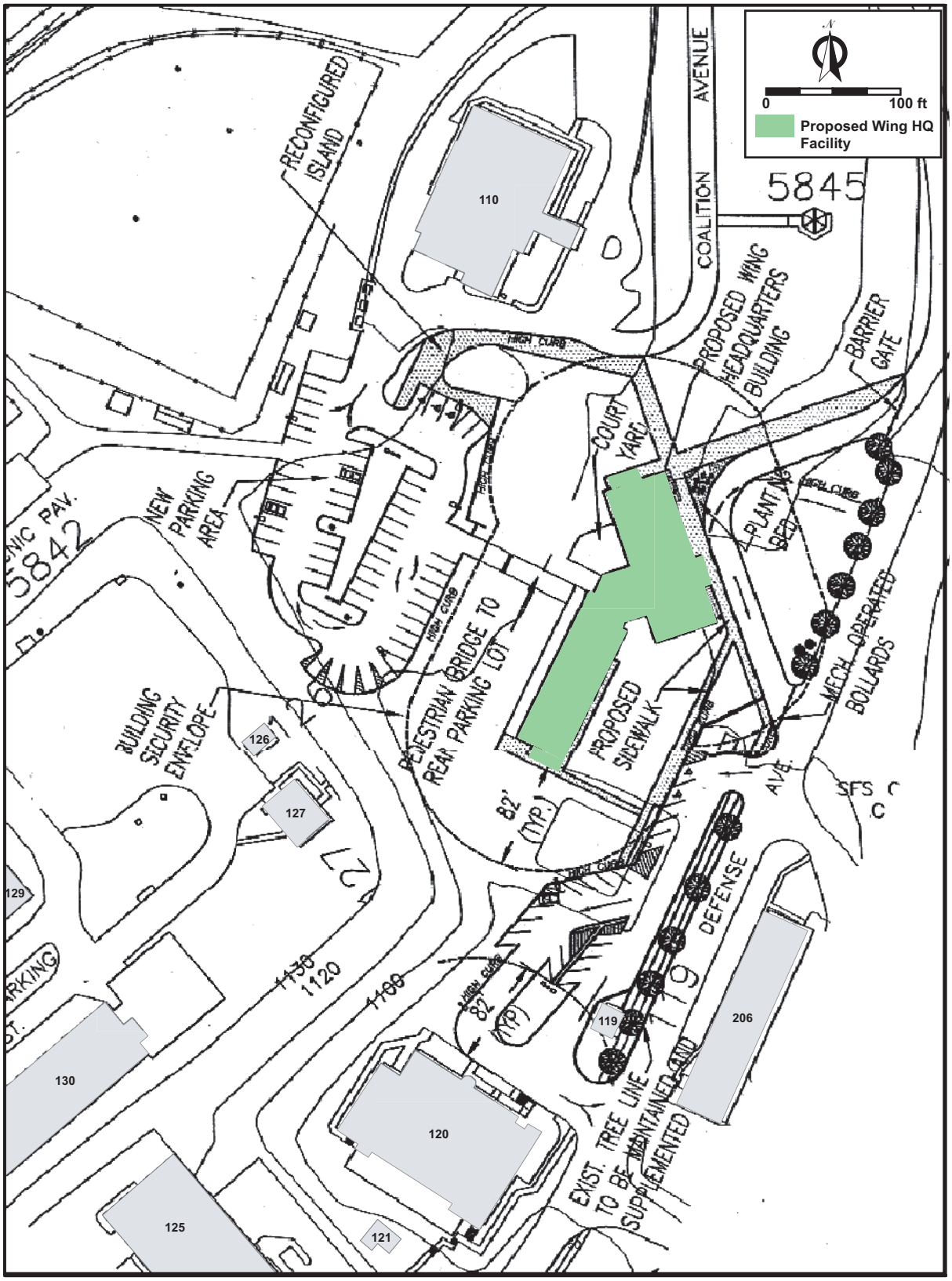

Figure 2-3. Proposed Construction Plan

help develop a consistent and coherent architectural character throughout the base. Landscaping would be used to provide an attractive and professional looking installation by using plants, shrubs, and trees to blend with the surrounding environment.

Tenants of the proposed Wing HQ Facility would be the Wing Commander and the direct support departments including Judge Advocate, Historian, Public Affairs, Military Equal Opportunity Office, Safety, Mission Support Group Commander, and direct supporting staff, Military Support Flight, Casualty Assistance, Civilian Personnel, Family Readiness, Professional Development, Education and Training, and Air Force Recruiting. The proposed Wing HQ Facility would result in no change in officer, reserve officer, unit reserve enlisted authorizations, or enlisted air reserve technician positions. Under the Proposed Action each office would be sized in an efficient layout in order to meet the USAF mission, standards, and AT/FP requirements.

The proposed construction site for the Wing HQ Facility consists of a gently sloped landscape on a tree-lined boulevard that would ensure the proposed Wing HQ Facility sets the tone for the base due to its close proximity to the Main Gate. The area surrounding the site is highly developed with roadways, parking lots, and other facilities. It is south of the existing Consolidated Club and associated parking lot. It is on the west side of Defense Avenue across the street from the base VQs. To the southwest of the site is the Base Fitness Center and associated parking lot, and to the northeast is Rocky Lane and base entry green space.

The site of the Proposed Action is on a closed Environmental Restoration Program (ERP) site ST-06, Former Petroleum, Oils and Lubricants (POL) Area (Fuel Storage Facility). Soil removal and disposal, as well as site restoration, are included as part of the Proposed Action, although may not be required. A Remedial Action Completion Report (PARS 2002a) for this ERP site has been approved by the PADEP. During construction, if any soils are suspected of being contaminated, they would be analyzed and managed in accordance with fuel-contaminated soil regulations. If contaminated soil is found and requires disposal, a Pennsylvania Form FC-1 *Notification of Intent to Dispose of Soil Contaminated by Virgin Petroleum* or equivalent form would be completed.

The proposed Wing HQ Facility would include the following:

- Interior walkways, entryways, classrooms, offices, an auditorium, conference rooms, and elevators.
- Reinforced concrete caissons, foundation and floor slabs, steel framing and trusses, brick masonry walls, and sloped metal roofing.

- Interior communication services including 4-pair telephone outlets, shielded data outlets, fiber optic cable outlets, television cable outlets, and necessary cable.
- External communication services including trenching, backfill, duct banks, manholes, hand holes, raceways, concrete, and necessary cable and terminations.

The proposed Wing HQ Facility would be designed to comply with the current architectural standards at Pittsburgh IAP ARS and would incorporate the current exterior features of existing facilities near the proposed project site including brick veneer and a standing seam metal roof. All landscaping would be in accordance with Pittsburgh IAP ARS standards and all construction would comply with fire and safety codes. To the greatest extent possible, the proposed Wing HQ Facility would be constructed using sustainable design concepts. Design should be possible to obtain silver Leadership in Energy & Environmental Design (United States Green Building Council) (LEED) certification. Sustainable design concepts emphasize state-of-the-art strategies for site development, efficient water and energy use, and improved indoor environmental quality.

Utilities are available at or near the proposed project site including water, sanitary sewer, storm sewer, underground/overhead primary electric, communications, and natural gas. Some of the existing utilities would require relocation and some would need to be abandoned, removed, or capped. Trenching of utility lines to the proposed Wing HQ Facility would be minimized to the greatest extent possible. All current utilities are adequate to meet the utility demands of the Proposed Action.

Construction and demolition (C&D) waste would be the responsibility of the contractor. All C&D waste generated as part of the Proposed Action would be recycled to the greatest extent possible. The contractor would transport the remaining C&D waste to an approved landfill.

2.4 No Action Alternative

Under the No Action Alternative, there would be no change from the existing conditions at the base; Pittsburgh IAP ARS would continue to use the existing Wing HQ Facility and the proposed Wing HQ Facility would not be constructed. The existing Wing HQ Facility would continue to not meet AT/FP standards and requirements. The use of administrative space in Buildings 208 and 210 is inadequate and these facilities have reached the end of their useful life expectancy. If the No Action Alternative is chosen, Command and Wing support staff would continue to operate with inadequate space requirements, which could affect future mission performance.

The No Action Alternative would not address the security, safety, or space requirements of AFRC and Pittsburgh IAP ARS, nor the standards specified in UFC 4-010-01. However, inclusion of the No

Action Alternative is prescribed by CEQ regulations and, therefore, will be carried forward for further analysis in the EA.

2.5 Alternatives Eliminated From Further Discussion

As part of the NEPA process, potential alternatives to the Proposed Action must be considered. Three alternatives to the Proposed Action were considered by AFRC but eliminated from further review based on financial reasons, mission constraints, and AT/FP standards and requirements. These alternatives are described in detail below.

2.5.1 Construct Wing HQ Facility in Existing Building 206 Location

This alternative considered constructing the proposed Wing HQ Facility in the location of Building 206. This alternative was dismissed because AT/FP minimum setback distances could not be met. Although Building 206 is scheduled for demolition, it is recently been renovated for use at least through 2011. If Building 206 was demolished to construct the proposed Wing HQ Facility, there would be insufficient VQ space to accommodate base visitors. In addition, this area would require construction of additional parking areas and would not be economically feasible.

2.5.2 Construct Wing HQ Facility in Existing Ball Field Location

This alternative considered constructing the proposed Wing HQ Facility in the location of the existing ball field. This location meets all project location criteria. However, constructing the proposed Wing HQ Facility in this location would eliminate essential recreational areas for base personnel and no other land space is currently available for relocation of the ball field. Therefore, this alternative was dismissed from further evaluation.

2.5.3 Construct Wing HQ Facility in the Locations of Existing Buildings 208–210, 213 and 216–219

This alternative considered constructing the proposed Wing HQ Facility in the locations of Buildings 208–210, 213 and 216–219. This alternative was dismissed because it would not be economically feasible. The VQ facilities are scheduled for demolition between 2007 and 2011 and five new VQ facilities will be constructed on this land space. If the proposed Wing HQ Facility were constructed here, another suitable location would have to be found for the five new VQ facilities and the base does not currently have enough available land space to accommodate all five VQ facilities.

2.6 Decision to be Made and Identification of Preferred Alternative

AFRC would make one of the following decisions:

- Implement the Proposed Action
- Not implement the Proposed Action (No Action Alternative)

The Preferred Alternative is implementation of the Proposed Action as set forth by AFRC.

3. Affected Environment

Section 3 describes the environmental resources and conditions most likely to be affected by the Proposed Action and provides information to serve as a baseline from which to identify and evaluate environmental and socioeconomic changes likely to result from implementation of the Proposed Action. Baseline conditions represent current conditions. The potential environmental impacts of the Proposed Action and the No Action Alternative on the baseline conditions are described in Section 4.

In compliance with NEPA, CEQ guidelines, and 32 CFR Part 989, as amended, the description of the affected environment focuses on those resources and conditions potentially subject to impacts. Some environmental resources and conditions that are often analyzed in an EA have been omitted from this analysis. The following details the basis for such exclusions.

Biological Resources. Implementation of the Proposed Action would occur in a previously disturbed area and would not impact any biological resources. The area where the Proposed Action would occur is not a suitable habitat for biological species. Threatened or endangered species or their habitat have not been observed in the location of the Proposed Action. Therefore, there would be no impact on biological resources at Pittsburgh IAP ARS. Accordingly, the USAF has omitted detailed examination of biological resources.

Cultural Resources. No known cultural or historic resources or artifacts have been identified in the area of the Proposed Action, and the Proposed Action. The location of the Proposed Action is in a previously disturbed area. Therefore, there would be no impact on cultural resources at Pittsburgh IAP ARS. Accordingly, the USAF has omitted detailed examination of cultural resources. If an unexpected archaeological discovery occurs during construction, the procedures outlined for an unanticipated archaeological discoveries as defined in the Pittsburgh IAP ARS Integrated Cultural Resource Management Plan would be followed (PARS 1997). If archaeological properties are discovered, excavation and disturbance of the site would cease and the Cultural Resource Manager would be notified immediately. The Cultural Resource Manager would take actions to evaluate the discovery and provide guidance to the project engineer on any actions that should be taken to provide appropriate management treatment of the resource.

Land Use. All activities associated with the Proposed Action would be consistent with present and foreseeable land use patterns at Pittsburgh IAP ARS. Implementation of the Proposed Action would

not significantly alter the existing land use at Pittsburgh IAP ARS. Accordingly, the USAF has omitted detailed examination of land use.

Socioeconomics. The Proposed Action does not involve any activities that would directly affect off-base activities, or directly or indirectly contribute to changes in socioeconomic resources. There would be no change in the number of personnel assigned to Pittsburgh IAP ARS, and no changes in area population or associated changes in demand for housing and services. Accordingly, the USAF has omitted detailed examination of socioeconomics in this EA.

Environmental Justice. The Proposed Action does not involve any activities that would affect or contribute to changes in low-income or minority populations because all work would be performed within the base boundary. Accordingly, the USAF has omitted detailed examination of environmental justice.

3.1 Air Quality

3.1.1 Definition of the Resource

In accordance with Federal CAA requirements, the air quality in a given region or area is measured by the concentration of various pollutants in the atmosphere. The measurements of these "criteria pollutants" in ambient air are expressed in units of parts per million (ppm) or in units of micrograms per cubic meter ($\mu g/m^3$). The air quality in a region is a result not only of the types and quantities of atmospheric pollutants and pollutant sources in an area, but also surface topography, the size of the topological "air basin," and the prevailing meteorological conditions.

The CAA directed USEPA to develop, implement, and enforce strong environmental regulations that would ensure clean and healthy ambient air quality. To protect public health and welfare, USEPA developed numerical concentration-based standards, or National Ambient Air Quality Standards (NAAQS), for pollutants that have been determined to impact human health and the environment. USEPA established both primary and secondary NAAQS under the provisions of the CAA. NAAQS are currently established for six criteria air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter (including particulate matter equal to or less than 10 microns in diameter [PM_{10}] and particulate matter equal to or less than 2.5 microns in diameter [$PM_{2.5}$]), and lead (Pb). The primary NAAQS represent maximum levels of background air pollution that are considered safe, with an adequate margin of safety to protect public health. Secondary NAAQS represent the maximum pollutant concentration necessary to protect vegetation,

crops, and other public resources along with maintaining visibility standards. Table 3-1 presents the primary and secondary NAAQS that apply to the air quality in Pennsylvania (USEPA 2004a).

Table 3-1. National Ambient Air Quality Standards

Pollutant	Standard Value		Standard Type
Carbon Monoxide (CO)			
8-hour Average[1]	9 ppm	(10 mg/m^3)	Primary and Secondary
1-hour Average[1]	35 ppm	(40 mg/m^3)	Primary
Nitrogen Dioxide (NO_2)			
Annual Arithmetic Mean	0.053 ppm	(100 µg/m^3)	Primary and Secondary
Ozone (O_3)			
1-hour Average[6]	0.12 ppm	(235 µg/m^3)	Primary and Secondary
8-hour Average[5]	0.08 ppm	(157 µg/m^3)	Primary and Secondary
Lead (Pb)			
Quarterly Average		1.5 µg/m^3	Primary and Secondary
Particulate < 10 micrometers (PM_{10})			
Annual Arithmetic Mean[2]		50 µg/m^3	Primary and Secondary
24-hour Average[1]		150 µg/m^3	Primary
Particulate < 2.5 micrometers ($PM_{2.5}$)			
Annual Arithmetic Mean[3]		15 µg/m^3	Primary and Secondary
24-hour Average[4]		65 µg/m^3	Primary
Sulfur Dioxide (SO_2)			
Annual Arithmetic Mean	0.03 ppm	(80 µg/m^3)	Primary
24-hour Average[1]	0.14 ppm	(365 µg/m^3)	Primary
3-hour Average[1]	0.5 ppm	(1300 µg/m^3)	Secondary

Source: USEPA 2004a

Notes: Parenthetical values are approximate equivalent concentrations.

mg/m^3 – milligrams per cubic meter

[1] Not to be exceeded more than once per year.

[2] To attain this standard, the expected annual arithmetic mean PM_{10} concentration at each monitor within an area must not exceed 50 µg/m^3.

[3] To attain this standard, the 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 15.0 ug/m^3.

[4] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 65 ug/m^3.

[5] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.

[6] (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1, as determined by Appendix H. (b) The 1-hour NAAQS will no longer apply to an area 1 year after the effective date of the designation of that area for the 8-hour ozone NAAQS. The effective designation date for most areas is June 15, 2004 (40 CFR 50.9; see Federal Register of April 30, 2004 [69 FR 23996]).

Although O_3 is considered a criteria air pollutant and is measurable in the atmosphere, it is not often considered a regulated air pollutant when calculating emissions because O_3 is typically not emitted directly from most emissions sources. Ozone is formed in the atmosphere by photochemical reactions involving sunlight and previously emitted pollutants or "O_3 precursors." These O_3 precursors consist primarily of nitrogen oxides (NO_x) and volatile organic compounds (VOCs) that are directly emitted from a wide range of emissions sources. For this reason, regulatory agencies attempt to limit atmospheric O_3 concentrations by controlling VOC pollutants (also identified as reactive organic gases) and NO_2.

The CAA and USEPA delegated responsibility for ensuring compliance with NAAQS to the states and local agencies. As such, each state must develop air pollutant control programs and promulgate regulations and rules that focus on meeting NAAQS and maintaining healthy ambient air quality levels. These programs are detailed in SIPs that must be developed by each state or local regulatory agency and approved by USEPA. A SIP is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with all NAAQS. Any changes to the compliance schedule or plan (e.g., new regulations, emissions budgets, controls) must be incorporated into the SIP and approved by USEPA.

In 1997, USEPA initiated work on new General Conformity rules and guidance to reflect the new 8-hour O_3, $PM_{2.5}$, and regional haze standards that were promulgated in that year. The 1-hour O_3 standard will no longer apply to an area 1 year after the effective date of the designation of that area for the 8-hour O_3 NAAQS. The effective designation date for most areas is June 15, 2004 (USEPA 2004a). The USEPA designated $PM_{2.5}$ nonattainment areas in December 2004, and plans on finalizing the $PM_{2.5}$ implementation rule by early 2006.

The General Conformity Rule and the promulgated regulations found in 40 CFR Part 93 exempt certain Federal actions from conformity determinations (e.g., contaminated site cleanup and natural emergency response activities). Other Federal actions are assumed to conform if total indirect and direct project emissions are below *de minimis* levels presented in 40 CFR 93.153. The threshold levels (in tons of pollutant per year) depend upon the nonattainment status that USEPA has assigned to a nonattainment area. Once the net change in nonattainment pollutants is calculated, the Federal agency must compare them to the *de minimis* thresholds.

Title V of the CAA Amendments of 1990 requires states and local agencies to permit major stationary sources. A major stationary source is a facility (i.e., plant, base, or activity) that can emit more than

100 tons per year (tpy) of any one criteria air pollutant, 10 tpy of a hazardous air pollutant, or 25 tpy of any combination of hazardous air pollutants. However, lower pollutant-specific "major source" permitting thresholds apply in nonattainment areas. For example, the Title V permitting threshold for an "extreme" O_3 nonattainment area is 10 tpy of potential VOC or NO_x emissions. The purpose of the permitting rule is to establish regulatory control over large, industrial-type activities and monitor their impact on air quality.

Federal Prevention of Significant Deterioration (PSD) regulations also define air pollutant emissions from proposed major stationary sources or modifications to be "significant" if (1) a proposed project is within 10 kilometers of any Class I area, and (2) regulated pollutant emissions would cause an increase in the 24-hour average concentration of any regulated pollutant in the Class I area of 1 $\mu g/m^3$ or more [40 CFR 52.21(b)(23)(iii)]. PSD regulations also define ambient air increments, limiting the allowable increases to any area's baseline air contaminant concentrations, based on the area's designation as Class I, II, or III [40 CFR 52.21(c)].

3.1.2 Existing Conditions

Under the authority of the CAA and subsequent regulations, USEPA has divided the country into geographical regions known as Air Quality Control Regions (AQCRs) to evaluate compliance with the NAAQS. Pittsburgh IAP ARS is in the Southwest Pennsylvania Intrastate Air Quality Control Region (SPIAQCR). The SPIAQCR consists of Allegheny, Armstrong, Beaver, Butler, Greene, Fayette, Indiana, Washington, and Westmoreland counties (PARS 2002b). The SPIAQCR is under the jurisdiction of the PADEP, Bureau of Air Quality. Section 12 of the PAPCA reserved powers to political subdivisions to enact air pollution control ordinances that are not less stringent than the requirements of the CAA, the PAPCA, and regulations adopted under the Acts. The only local air pollution control agencies authorized under the PAPCA are the Philadelphia Department of Health Air Management Services and the ACHD (PADEP 2005).

All AQCRs are classified as an attainment area, maintenance area, or nonattainment area for each of the criteria pollutants depending on whether it meets or fails to meet the NAAQS for the pollutant. A maintenance area is one that was previously a nonattainment area, but is now in attainment. Pittsburgh IAP ARS is located in the Pittsburgh-Beaver Valley area in Allegheny County, PA. The Pittsburgh-Beaver Valley area in Allegheny County, PA is classified as a maintenance area for the 1-hour O_3 standard and is classified as a nonattainment area for the 8-hour O_3 standard. In addition, in December 2004 the area was designated nonattainment for $PM_{2.5}$ (USEPA 2004b).

Pittsburgh IAP ARS is in a humid, temperate climate, consisting of warm, humid summers and cold winters. The annual precipitation averages 36.39 inches, and is fairly evenly distributed throughout the year. July has the highest amount of rainfall. During winter months, approximately one fourth of the precipitation occurs as snow. Snow covers the ground on an average of 33 days per year. Average annual snowfall is approximately 45 inches (PARS 2001c).

The average annual temperature is 52.3 degrees Fahrenheit. The temperature varies widely throughout the year due to seasonal variations. The relative humidity averages between 78 percent in the morning and 57 percent in the afternoon. Winds are predominately from the west to southwest at an average of 9.1 miles per hour (PARS 2001c).

Each calendar year, Pittsburgh IAP ARS is required to prepare and submit an annual emissions inventory to HQ AFRC. The purpose of this annual emissions inventory is to estimate and document air pollutant emissions from stationary and mobile sources.

Stationary source categories include external combustion sources, internal combustion sources, fuel transfer/dispensing, storage tanks, surface coating operations, degreasers/solvent cleaners, aircraft fuel cell maintenance, off-aircraft engine testing, miscellaneous chemical usage, and dust collectors. Mobile source categories include aircraft operations, aerospace ground equipment, government-owned vehicles, privately owned vehicles, and non-road engines/vehicles.

3.2 Noise

3.2.1 Definition of the Resource

Physically, there is no distinction between sound and noise. Sound is a sensory perception and the complex pattern of sound waves is labeled noise, music, speech, etc. Thus, noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise annoying. Human response to increased sound levels varies according to the source type, characteristics of the noise source, distance between source and receptor, receptor sensitivity, and time of day.

Sound is measured with instruments that record instantaneous sound levels in decibels (dB). A-weighted sound level measurements (dBA) are used to characterize sound levels that can be sensed by the human ear. "A-weighted" denotes the adjustment of the frequency content of a noise event to represent the way in which the average human ear responds to the noise event. All sound levels analyzed in this EA are A-weighted; thus, the term dB implies dBA unless otherwise noted.

Noise Criteria and Regulations. Federal, state, and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. The following paragraphs describe the guidelines and regulations that are relevant to the project.

According to USAF, FAA, and U.S. Department of Housing and Urban Development (HUD) criteria, residential units and other noise-sensitive land uses are "clearly unacceptable" in areas where the noise exposure exceeds a day-night average A-weighted sound level (DNL) of 75 dBA; "normally unacceptable" in regions exposed to noise between the DNL of 65 to 75 dBA; and "normally acceptable" in areas exposed to noise where the DNL is 65 dBA or less. The Federal Interagency Committee on Urban Noise (FICUN) developed land-use compatibility guidelines for noise in terms of DNL (USDOT 1980). DNL is the metric used by the USAF in determining noise impacts of military airfield operations for land use planning. USAF land use compatibility guidelines (relative to DNL values) are documented in the Air Force Handbook 32-7084, *AICUZ Program Handbook* (USAF 1999). Four noise zones are used in Air Installation Compatible Use Zone (AICUZ) studies to identify noise impacts from aircraft operations. These noise zones range from a DNL of 65 dBA to a DNL of 80 dBA and above in five dB increments. For example, it is recommended that no residential uses, such as homes, multifamily dwellings, dormitories, hotels, and mobile home parks, be located where the noise is expected to exceed a DNL of 65 dBA. If sensitive structures are located in areas within a DNL range of 65 to 75 dBA, noise sensitive structures should be designed to achieve a 25 to 30 dBA interior noise reduction. Some commercial and industrial uses are considered acceptable where the noise level exceeds DNL of 65 dBA. For outdoor activities (i.e., wilderness areas), USEPA recommends DNL of 55 dBA as the sound level below which there is no reason to suspect that the general population will be at risk from any of the effects of noise (USEPA 1974).

3.2.2 Existing Conditions

The *Greater Pittsburgh International Airport Part 150 Study Update of 1992*, presents noise contours for Pittsburgh IAP in accordance with FAA Part 150. This contour map is the record drawing for noise contours affecting Pittsburgh IAP ARS (FAA 1992).

Nearly all studies are consistent in their land use recommendations on the compatibility of residential development and aircraft noise in that they recommend no residential uses in noise zones above an average DNL of 75 dB. Additionally, these studies provide no recommended restrictions for land uses compatibility for noise zones below 65 dB and between a 65 and 75 dB, there is currently no consensus on land use guidelines. Each has a varying degree of compatibility. Figure 3-1 displays the noise contours generated by current aircraft operations on Pittsburgh IAP ARS.

As expected, the highest average sound levels (75 dB and above) occur adjacent to the runways. Sound levels exceeding 75 dB are experienced throughout the southern industrial area. Four visiting airmen quarters are also within this noise contour. Average sound levels between 70 and 75 dB are experienced at Wing Headquarters (Building 316) and other administrative facilities (Buildings 208 and 210). The 65 dB contour extends as far north as the Airlift Club (Building 110), leaving only the main gate and the POL complex in an area experiencing modest average levels of sound.

As part of its standard aircraft operating procedures, the 911 AW attempts to minimize noise disturbances to the civilian community. On-base, land use planning and facility siting are compatible with airfield operations and related noise levels. With limited sites for visiting officer and airmen quarters, base planners ensure that noise attenuation features are included in the design of facilities to be constructed in high noise areas, thereby reducing building interior noise to acceptable levels. Noise from aircraft operations is not expected to constrain future development at the base (PARS 2001c).

Construction Program. Building construction, modification, and demolition work can cause considerable noise emissions. A variety of sounds come from cranes, cement mixers, welding, hammering, boring, and other work processes. Construction equipment and building operations are often poorly silenced, but quickly become part of the ambient noise levels heard everyday.

3.3 Safety

3.3.1 Definition of the Resource

A safe environment is one in which there is no, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. Human health and safety addresses (1) workers' health and safety during demolition activities and facilities construction, and (2) public safety during demolition and construction activities and during subsequent operations of those facilities.

Construction site safety is largely a matter of adherence to regulatory requirements imposed for the benefit of employees and implementation of operational practices that reduce risks of illness, injury, death, and property damage. The health and safety of onsite military and civilian workers are safeguarded by numerous DOD and USAF regulations designed to comply with standards issued by the Occupational Safety and Health Administration (OSHA) and USEPA. These standards specify the amount and type of training required for industrial workers, the use of protective equipment and clothing, engineering controls, and maximum exposure limits for workplace stressors.

Figure 3-1. Noise Contours at Pittsburgh IAP ARS

Safety and accident hazards can often be identified and reduced or eliminated. Necessary elements for an accident-prone situation or environment include the presence of the hazard itself together with the exposed (and possibly susceptible) population. The degree of exposure depends primarily on the proximity of the hazard to the population. Activities that can be hazardous include transportation, maintenance and repair activities, and the creation of highly noisy environments. The proper operation, maintenance, and repair of vehicles and equipment carry important safety implications. Any facility or human-use area with potential explosive or other rapid oxidation process creates unsafe environments for nearby populations. Extremely noisy environments can also mask verbal or mechanical warning signals such as sirens, bells, or horns.

3.3.2 Existing Conditions

All contractors performing construction activities are responsible for following ground safety and OSHA regulations and are required to conduct construction activities in a manner that does not pose any risk to workers or personnel. Industrial hygiene programs address exposure to hazardous materials, use of personal protective equipment, and use and availability of Material Safety Data Sheets. Industrial hygiene is the responsibility of contractors, as applicable. Contractor responsibilities are to review potentially hazardous workplaces; to monitor exposure to workplace chemical (e.g., asbestos, lead, hazardous material), physical (e.g., noise propagation), and biological (e.g., infectious waste) agents; to recommend and evaluate controls (e.g., ventilation, respirators) to ensure personnel are properly protected or unexposed; and to ensure a medical surveillance program is in place to perform occupational health physicals for those workers subject to any accidental chemical exposures or engaged in hazardous waste work.

3.4 Geological Resources

3.4.1 Definition of the Resource

Geological resources consist of the earth's surface and subsurface materials. Within a given physiographic province, these resources typically are described in terms of topography, soils, geology, minerals, and, where applicable, paleontology.

Topography. Topography pertains to the general shape and arrangement of a land surface, including its height and the position of its natural and human-made features.

Soils. Soils are the unconsolidated materials overlying bedrock or other parent material. Soils typically are described in terms of their complex type, slope, and physical characteristics. Differences

among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses. In appropriate cases, soils properties must be examined for their compatibility with particular construction activities or types of land use.

Geology. Geology, which concerns itself with the study of the earth's composition, provides information on the structure and configuration of surface and subsurface features. Such information derives from field analysis based on observations of the surface and borings to identify subsurface composition. Hydrogeology extends the study of the subsurface to water-bearing structures. Hydrogeological information helps in the assessment of groundwater quality and quantity and its movement.

3.4.2 Existing Conditions

The geological resources information provided in this EA was obtained from the *Pittsburgh International Airport-Air Reserve Station General Plan* (PARS 2001c). Pittsburgh IAP ARS is located in the unglaciated Appalachian Plateau physiographic province. This province is characterized by nearly level stream valleys with steep side slopes and gently sloping to steep ridge tops. Installation elevations range from 1,147 feet above mean sea level on the parking apron to 1,030 feet at the base's southeastern boundary.

The predominant bedrock consists of shale, siltstone, and sandstone of the Upper Pennsylvania Casselman Formation. The base is underlain by the following lithologic units (in descending order): surface soils, limestone, siltstone, shale, and sandstone. Several thin coal beds are present in the subsurface. The basal units consist of massive shale beds with interbeds of siltstone and limestone. Subsurface sedimentary rocks generally dip to the southwest towards the Ohio River Basin.

The natural topography for the vast majority of the base has been reconfigured during development. Development sites have been leveled into terraces through cut and fill, to provide better building sites. Steep slopes (greater than 10 percent) are scattered throughout the base.

Pittsburgh IAP ARS is within the Urban land-Wharton-Gilpin soil association which is characterized by moderately deep well-drained soils and urban lands that are underlain by gray shale on uplands. There are three soil series which cover the installation property. The Urban land-Culleoka complex, gently sloping (UCB) covers the hilltop area including the aircraft apron and the hillside sloping eastward toward the dorm complex, and makes up 53 percent of the base. The natural slopes for

UCB soils vary from 0 to 8 percent, however, much of the developed portions have been subjected to cut and fill leaving a varied depth of soil, if any.

The Urban land-Culleoka complex, moderately steep (UCD) covers the sloping south-central and northeastern portions of the base, making up 41 percent of the base. The natural slopes for UCD soils vary from 8 to 25 percent. Most of these soils have been reconfigured through cut and fill.

The last series, the Gilpin, Weikert, and Culleoka shaley silt loams, very steep (GSF) is found in the southeastern corner and occupies 6 percent of the base. The GSF type has a shallow depth and natural slopes ranging from 25 to 80 percent. Much of the GSF soil at the base has been involved in previous reconfiguration and fill activities.

The base's topography, soil types, and intensity of local storms require careful design of storm drainage and landscaping in conjunction with construction projects. Adequate measures are required to prevent erosion.

3.5 Water Resources

3.5.1 Definition of the Resource

Water resources include groundwater, surface water, floodplains, and wastewater and storm water systems. Evaluation identifies the quantity and quality of the resource and its demand for potable, irrigation, and industrial purposes.

Groundwater. Groundwater consists of subsurface hydrologic resources. It is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater is typically described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate.

Surface Water. Surface water resources consist of lakes, rivers, and streams. Surface water is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. Storm water flows, which might be exacerbated by high proportions of impervious surfaces associated with buildings, roads, and parking lots, are important to the management of surface water. Storm water is also important to surface water quality because of the potential to introduce sediments and other contaminants into lakes, rivers, and streams.

Storm water systems convey precipitation away from developed sites to appropriate receiving surface waters. Storm water systems provide the benefit of reducing amounts of sediments and other

contaminants that would otherwise flow directly into surface waters. Failure to appropriately size storm water systems to either hold or delay conveyance of the largest predicted precipitation event will often lead to downstream flooding and the environmental and economic damages associated with flooding. As a general rule, higher densities of development, such as are found in urban areas, require greater degrees of storm water management because of the higher proportions of impervious surfaces that occur in urban centers.

Floodplains. Floodplains are areas of low-level ground present along a river or stream channel. Such lands might be subject to periodic or infrequent inundation due to rain or melting snow. Risk of flooding typically hinges on local topography, the frequency of precipitation events, and the size of the watershed above the floodplain. Flood potential is evaluated by the Federal Emergency Management Agency (FEMA), which evaluates floodplains for 100- and 500-year flood events. Federal, state, and local regulations often limit floodplain development to passive uses such as recreational and preservation activities to reduce the risks to human health and safety.

3.5.2 Existing Conditions

The water resources information provided below was obtained from the *Pittsburgh International Airport-Air Reserve Station General Plan* (PARS 2001c) and the Storm Water Pollution Prevention Plan (PARS 2002c).

Groundwater. The location of the Proposed Action is an ERP site. The remediation of this site was investigated in accordance with PADEP regulations. Results of groundwater monitoring were less than the non-residential PADEP Medium Specific Concentrations for Organic Regulated Substances in groundwater. PADEP, therefore issued a letter of concurrence for no further action to this site. During this remediation it was discovered that the groundwater table, in some locations, was up to 20 feet below grade.

Surface Water. Pittsburgh IAP ARS's hydrological system is composed of storm water management systems which outfall storm water to an unnamed tributary of McClaren's Run (just outside the eastern boundary of the base). Storm water from McClaren's Run passes through Pittsburgh IAP ARS and continues until it flows into Montour Run. Montour Run flows into the Ohio River just upstream of the town of Coraopolis.

The natural drainage is sloped in a southeasterly direction. Pittsburgh IAP ARS is near the top of the ridge line. There are no natural ponds or drainage features on base. Storm water is transported

through nine outfalls on base. There are no surface water or drainage features that present a constraint to future development on the base.

Floodplains. Given its topography and soils, Pittsburgh IAP ARS is well-drained. The FEMA map for the Moon Township area indicates that there are no 50- or 100-year floodplains which might constrain future development on the base. There is an unnamed tributary of McClaren's Run along the base's eastern border; however, the surrounding land is steeply sloped and cannot be developed, so the tributary itself does not pose a constraint.

3.6 Infrastructure and Utilities

3.6.1 Definition of the Resource

Infrastructure consists of the systems and physical structures that enable a population in a specified area to function. Infrastructure is wholly human-made, with a high correlation between the type and extent of infrastructure and the degree to which an area is characterized as "urban" or developed. The availability of infrastructure and its capacity to support growth are generally regarded as essential to economic growth of an area. The infrastructure components discussed in this section include the transportation network, electricity, natural gas, central heating and cooling systems, communications, water supply, sanitary systems and wastewater, and solid waste.

The availability of landfills to support a population's residential, commercial, and industrial needs is integral in evaluating municipal solid waste. Alternative means of waste disposal might involve waste-to-energy programs or incineration. In some localities, landfills are designed specifically for, and limited to, disposal of construction and demolition debris. Recycling programs for various waste categories (e.g., glass, metals, and papers) reduce reliance of landfills for disposal.

The General Plan provided descriptions of the affected environment for infrastructure (PARS 2001c).

3.6.2 Existing Conditions

Transportation Network. BR-60 runs adjacent to the installation along its eastern border. It serves as the link between the base and Interstate 79, approximately 8 miles to the southeast. Interstate 79 connects Pittsburgh with Erie, Pennsylvania, to the north, and Charleston, West Virginia, to the south.

Vehicular access to Pittsburgh IAP ARS is limited to the Main Gate, which is staffed 24 hours a day. The entrance to the base was substantially reconfigured in 1992, in conjunction with the construction

of the interchange at Thorn Run Road and BR-60. As a result of this project, the route to the Main Gate is via an access road that originates west of the interchange and terminates at the Main Gate.

The on-base street system consists of Defense Avenue, a primary road providing access off base, and Carter Street, a primary road that forms a partial loop before terminating in the vicinity of the Base Civil Engineer complex. Defense Avenue begins at the Main Gate and provides access to individual parking lots and minor streets prior to its terminal point at Building 409. Carter Street begins at its intersection with Defense Avenue west of Building 206 and serves the dormitories and base supply and engineering complexes.

The base roadway network is primarily in place, and the system offers sufficient vehicular access to all necessary facilities. With selected improvements and maintenance, the roadway system will be adequate to meet the present and future needs of the base.

Electricity. The Duquesne Light Company is the purveyor of electricity for Pittsburgh IAP ARS. Duquesne Light supplies electrical power to Pittsburgh IAP ARS from two 22.9 kilovolt (kV), three-phase overhead supply lines. The primary source originates at Duquesne Light's Montour Substation approximately 4 miles east of the base, while the secondary feed begins at the Russell Burdsall and Ward substation, 3 miles north of the base. The primary and secondary circuits have capacities of 17,055 and 10,313 kV-amperes, respectively. Automatic sectionalizing switches at the base substation control the two circuits. In the event of an outage on the Montour circuit, the base would automatically be switched to the secondary Russell Burdsall circuit. Once power is restored, the base would be switched back to the primary circuit, thereby providing the installation with virtually uninterruptible service. In addition, key facilities have emergency generators for backup of electrical systems in case of a power failure.

Duquesne Light's 22.9-kV transmission lines terminate at Facility 212, the base substation. A three-phase, 1,500 kV transformer owned and maintained by the power company steps down the voltage to 4.16 kV for primary distribution on base. From the transformer, cables feed two 1,200 amperes government-owned vacuum circuit breakers which protect two 4.16-kV feeders (one underground and one overhead) as they leave the substation. The underground feeder serves facilities in the southeast quadrant of the base. The overhead feeder, which includes some underground segments, is operated as a closed double loop system and serves the majority of the base's facilities.

Planned improvements to the electrical distribution system include replacing sagging overhead lines with underground lines to feed power to Buildings 109, 120, 125,127, 130, and roadway lights, while

converting the electrical distribution service from 5 kV to 15 kV. Primary and secondary electrical distribution lines will also be upgraded and placed underground.

Natural Gas. Dominion is the natural gas provider for Pittsburgh IAP ARS. Peoples Natural Gas Company purveys natural gas to the base via one 6-inch coated and wrapped steel gas line. This line extends from another transmission line approximately two miles away and operates at a pressure of 40 pounds per square inch (psi). Due to the presence of several interstate natural gas transmission lines, the overall availability of natural gas in the Pittsburgh area is good.

The 6-inch supply line enters the base southeast of the main gate, running parallel along Defense Avenue to the on-base gas metering station at Building 119. At the metering station, the line pressure is reduced to 10 psi prior to distribution to base facilities. The lines exiting the metering station are 4-inch polyethylene inserted within either an 8- or 6-inch steel pipe gas line. All remaining lines in the system are polyethylene plastic in steel, ranging in size from 0.5 to 4 inches.

Dominion owns all natural gas supply lines and the meter and regulator system to the point of pressure reduction; thus, Pittsburgh IAP ARS assumes ownership of gas lines on the "low side" of the reducing station.

Natural gas is the primary heating source for base facilities. Natural gas supplies the central heating plant (Building 213 basement) serving the dormitory complex, and fuels natural gas-fired furnaces for steam boilers and radiant heat systems within individual facilities. The gas distribution system is being expanded as stand-alone boilers are installed in new facilities.

The distribution system consists of several loops serving the flightline/support area, the dining hall/dormitory complex, the civil engineering and maintenance area, and the base's administrative core. Isolation valves are located at each building and throughout the system, thereby allowing portions of the system to be shut off for maintenance without affecting or interrupting service to other facilities. In most cases, tracer wires marking distribution lines have been installed to facilitate line location.

Although Dominion provides interruptible service to the base, utility personnel indicate that historically there have been no capacity or supply hindrances. Pittsburgh IAP ARS' natural gas system was extensively rehabilitated in 1991 and the distribution lines are in excellent condition. The system's line pressure of 10 psi is capable of accommodating base growth and new construction; the existing system and line pressure are adequate to support existing and future requirements.

Central Heating and Cooling. Pittsburgh IAP ARS operates one central heating plant in the basement of Building 213. This heating plant does not provide basewide heating. The plant hosts two boilers, a 1988-model hot water boiler rated at 7.3 million British Thermal Units (mBtu) per hour and a 1997-model steam boiler rated at 1.5 mBtu per hour. The hot water boiler produces low-pressure hot water for heating Buildings 208–210, 213, and 216–219, while the steam boiler serves the dining hall kitchen in Building 213 with 40 psi steam. Both boilers are natural gas-fired; there is no secondary fuel source. All other buildings have individual heating units.

Six-inch hot water supply and return lines connect the central plant to the individual buildings it serves. The insulated steel lines are located within rickwells and are cathodically protected. The hot water is circulated by two 350-gallons-per-minute, 5-horsepower pumps at temperatures ranging from 140 to 180 degrees. Maintenance personnel estimate the age of the distribution lines to be approximately 20 years.

Maintenance personnel cite the overall rating of the central heating system as good. The boilers currently in use are relatively new and of the same capacity as those originally installed decades ago, due to better insulated buildings and an increase in the number of pitched roofs. Because of the predominate use of individual gas-fired boilers and radiant heating units, there are no plans to expand the central heating system beyond its current configuration.

Communications. The 911 Communications Squadron operates and maintains communications systems and equipment at Pittsburgh IAP ARS to meet mission requirements. The communications system consists of twisted pair copper cable and fiber optic cable; underground cable is direct bury, in duct, or armor jacketed. Direct bury characterizes a majority of the underground cable in the network. The communications system is host to a manhole and duct system that facilitates the distribution of and access to base communications. The cable vault and main distribution frame are in Building 405, the central office.

The current local area network architecture is a newly installed fiber optic backbone in an Ethernet-based star network configuration. This network will enhance the data transfer capabilities for local area network users, as well as those users of data systems which require dedicated circuits.

Water Supply. The base obtains its potable water by purchase from the Moon Township Municipal Authority and has an alternate water supply point from Moon Township along Defense Avenue. The water acquired from the Authority is metered and delivered to the base via one 12-inch main. The

water supply is then delivered into the distribution system through an 8-inch main. The average water pressure supplied to the base is 90 psi. Pittsburgh IAP ARS has no active potable water wells.

The station's potable water is treated by the Moon Township Municipal Authority before it is conveyed to the base. Treatment includes chlorine contact, settling, filtering, chlorination and fluoridation. The base does not provide any additional treatment to the potable water supply prior to consumption. There are no reported potable water quality problems.

Water storage is provided by a 1.5-million gallon elevated water storage tank owned and operated by the Moon Township Municipal Authority. Constructed by the Authority in 1996 on a site provided by the base, the tank serves both the local community and the installation. In addition to ensuring adequate water pressure and storage systemwide, the Authority reserves 300,000 gallons of water exclusively for use by the base.

The water distribution system is government-owned and consists of both water mains and service laterals. The water mains were upgraded in 1995 and are primarily polyvinyl chloride (PVC) with some ductile iron pipes. They range in size from 6 to 10 inches. Lateral lines range in size from 1 to 6 inches and are also primarily PVC construction. The base's original water distribution system was abandoned in place during a systemwide upgrade completed in 1995.

The water supply and distribution system is in excellent condition. Bioenvironmental Engineering periodically conducts complete water sampling tests to ensure that high-quality potable water is continuously supplied. Currently, no additional improvements to the water system are required, and no major improvements are planned in the near future. Deficient water lines are replaced as necessary, and system expansion occurs concurrently with new construction on base.

Sanitary Sewer and Wastewater. Wastewater generated by the base is disposed of through Moon Township Municipal Authority's sanitary sewer lines and sewage treatment facility. Pittsburgh IAP ARS' wastewater is carried off base via one 15-inch sewer main, which runs along the eastern border of the base. All wastewater is delivered to the Moon Township Municipal Authority's wastewater treatment plant, where it is treated and discharged into Montour Run. The treatment facility was upgraded by the Authority in 1991 from a capacity of 3.1 million gallons per day to 6.2 million gallons per day. Pittsburgh IAP ARS does not use septic systems for the treatment and disposal of wastewater. Industrial wastes are treated through oil/water separators that subsequently discharge directly to the sanitary sewer system for additional treatment.

The on-base sanitary sewer system consists of approximately 16,500 feet of gravity flow pipe. The collection system includes service laterals, oil/water separators, grease traps, and sanitary sewer system mains. Service laterals are typically 3 to 6 inches in diameter and mains range from 6 to 8 inches. Construction materials include vitrified clay for older portions of the system and PVC for all newer piping. The system was originally installed in the 1950s, and the age of lines varies with the area of the base. The base's terrain and slopes provide for adequate flow, and all mains are gravity driven. The base's sanitary sewerage system ties into Moon Township's sanitary sewer line at four locations along the eastern boundary of the base.

A utility master plan prepared in 1992 concluded that the base's sanitary sewerage system was functional, although some components were in need of maintenance and repair. The Moon Township Municipal Authority's sanitary sewer collection system and sewage treatment plant are adequate to meet the wastewater treatment requirements of Pittsburgh IAP ARS and all components of the system are presently adequate to meet daily and future requirements.

Solid Waste. Wastes disposed of in the solid waste stream at Pittsburgh IAP ARS are expected to consist only of those materials that cannot be effectively recycled. This commonly includes paper towels and other sanitary wastes, food-soiled wrappings and packagings, most food wastes, plastic bags and wrappings, nonrecyclable C&D wastes, and other miscellaneous nonrecyclable materials from administrative, industrial, food-service, and retail operations.

Refuse pickup is handled at Pittsburgh IAP ARS by Waste Management of Pennsylvania, Inc., under a combined refuse and recycling contract. This refuse is disposed of in the Arden Landfill, which is owned and operated by Waste Management and permitted by PADEP. Pittsburgh IAP ARS does not have an on-base solid waste landfill.

C&D waste and nonrecurring municipal solid waste (MSW) generated under contract are the responsibility of the contractor. C&D waste and nonrecurring MSW generated under contract or by base personnel are recycled to the greatest extent possible. Contractors are required to report the quantities of recycled C&D waste. Specifications in these contracts require contractors to provide information regarding the disposition of the waste they generate. A 30-cubic-yard C&D dumpster is used by base personnel to dispose of nonrecyclable C&D waste.

3.7 Hazardous Materials and Wastes

3.7.1 Definition of the Resource

AFPD 32-70, *Environmental Quality*, establishes the policy that the USAF is committed to

- Cleaning up environmental damage resulting from its past activities
- Meeting all environmental standards applicable to its present operations
- Planning its future activities to minimize environmental impacts
- Managing responsibly the irreplaceable natural and cultural resources it holds in public trust
- Eliminating pollution from its activities wherever possible

Hazardous material is defined as any substance with physical properties of ignitability, corrosivity, reactivity, or toxicity that could cause an increase in mortality, serious irreversible illness, and incapacitating reversible illness, or that might pose a substantial threat to human health or the environment. Hazardous waste is defined as any solid, liquid, contained gaseous, or semisolid waste, or any combination of wastes that pose a substantial present or potential hazard to human health or the environment.

Evaluation of hazardous materials and wastes focuses on underground storage tanks (USTs) and aboveground storage tanks and the storage, transport, and use of pesticides and herbicides, fuels, and POLs. Evaluation might also extend to generation, storage, transportation, and disposal of hazardous wastes when such activity occurs at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes can threaten the health and well being of wildlife species, botanical habitats, soil systems, and water resources. In the event of release of hazardous materials or wastes, the extent of contamination varies based on type of soil, topography, and water resources.

Special hazards are those substances that might pose a risk to human health, but are not regulated as contaminants under the hazardous waste statutes. Included in this category are asbestos-containing materials (ACM), radon, lead-based paint (LBP), polychlorinated biphenyls, and unexploded ordnance. The presence of special hazards or controls over them might affect, or be affected by, a proposed action. Information on special hazards describing their locations, quantities, and condition assists in determining the significance of a proposed action.

CERCLA, as amended by SARA and TSCA define hazardous materials. The Solid Waste Disposal Act as amended by RCRA, which was further amended by HSWA, defines hazardous wastes. In

general, both hazardous materials and wastes include substances that, because of their quantity; concentration; or physical, chemical, or infectious characteristics, could present substantial danger to public health or welfare or the environment when released or otherwise improperly managed.

Through its ERP, DOD evaluates and cleans up sites where hazardous wastes have been spilled or released to the environment. The ERP provides a uniform, thorough methodology to evaluate past disposal sites, to control the migration of contaminants, to minimize potential hazards to human health and the environment, and to clean up contamination. Description of ERP activities provides a useful gauge of the condition of soils, water resources, and other resources that might be affected by contaminants. It also aids in identification of properties and their usefulness for given purposes (e.g., activities dependent on groundwater usage might be foreclosed where a groundwater contaminant plume remains to complete remediation).

3.7.2 Existing Conditions

Hazardous Materials. AFI 32-7086, *Hazardous Materials Management*, establishes procedures and standards that govern management of hazardous materials throughout the USAF. It applies to all USAF personnel who authorize, procure, issue, use, or dispose of hazardous materials, and to those who manage, monitor, or track any of those activities. The 911 AW has established a hazardous materials management program (HMMP) in accordance with AFI 32-7086 (PARS 2003b). The HMMP ensures that only the smallest quantities of hazardous materials necessary to accomplish the mission are purchased and used.

Hazardous and toxic material procurements at Pittsburgh IAP ARS are approved and tracked by the Bioenvironmental Engineering, Safety Office and Environmental Flight through the use of the USAF Environmental Management and Information System software. Environmental Flight at Pittsburgh IAP ARS supports and monitors environmental permits, hazardous material and hazardous waste storage, and spill prevention and response.

Hazardous Wastes. Hazardous wastes generated within the state of Pennsylvania must be managed in accordance with USEPA, State of Pennsylvania, and USAF regulatory requirements. The 911 AW maintains a *Hazardous Waste Management Plan* (PARS 2003b) as directed by AFI 32-7042, *Solid and Hazardous Waste Compliance*. This plan prescribes the roles and responsibilities of all members of Pittsburgh IAP ARS with respect to the waste stream inventory, waste analysis plan, hazardous waste management procedures, training, emergency response, and pollution prevention. The plan

establishes the procedures to comply with applicable Federal, state, and local standards for solid waste and hazardous waste management.

Pittsburgh IAP ARS is a small quantity generator (SQG), which is defined by RCRA as a generator that generates greater than 100 kilograms but less than 1,000 kilograms per month of hazardous waste. Pittsburgh IAP ARS does not have a USEPA permit for hazardous waste (PARS 2003b). A USEPA identification number has been assigned to Pittsburgh IAP ARS for use in tracking hazardous waste once it leaves the base.

All organizations on base are considered together as one generator for purposes of determining the quantity of hazardous wastes generated monthly. An SQG can accumulate hazardous waste on site for up to 180 days without a permit. The 911 AW has a base accumulation point (BAP) in Building 335 for the storage of hazardous wastes for less than 180 days before they are transported off site for proper handling. Individual shops manage wastes at satellite or initial accumulation points (APs) before transporting the wastes to the BAP. Processes generating hazardous wastes on Pittsburgh IAP ARS include aircraft and vehicle maintenance, parts cleaning, support equipment maintenance, general facility maintenance, painting, nondestructive inspection, weapons training and cleaning, and expired shelf-life materials.

Hazardous waste is temporarily accumulated and stored at Pittsburgh IAP ARS at either hazardous waste APs or the 180-Day BAP in Building 335. There is no permitted storage facility at Pittsburgh IAP ARS, and hazardous wastes must be shipped to a permitted Treatment, Storage, or Disposal (TSD) Facility or to a facility that has interim status within 180 days of receipt at the BAP. Pittsburgh IAP ARS uses the DOD-operated, Defense Reutilization and Marketing Office, in Mechanicsburg, Pennsylvania, for the transfer of the majority of its hazardous waste to a permitted TSD facility.

Pollution Prevention. AFI 32-7080, *Pollution Prevention Program*, implements the regulatory mandates in EPCRA; PPA of 1990; EO 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements*; EO 12873, *Federal Acquisition, Recycling, and Waste Prevention*; and EO 12902, *Energy Efficiency and Water Conservation at Federal Facilities*. AFI 32-7080 prescribes the establishment of Pollution Prevention Management Plans. The 911 AW fulfills this requirement with the following plans:

- *Storm Water Pollution Prevention Plan* (PARS 2002c)
- *Hazardous Waste Management Plan* (PARS 2003b)

- *Hazardous Material Emergency Planning and Response Plan* (PARS 2002d)
- *Solid Waste Management Plan* (PARS 2003c)

These plans ensure that Pittsburgh IAP ARS maintains a waste reduction program and meets the requirements of the CWA; the NPDES permit program; and Federal, state, and local requirements for spill prevention control and countermeasures.

Asbestos. AFI 32-1052, *Facilities Asbestos Management*, which implements AFPD 32-10, *Installations and Facilities*, ensures compliance with 40 CFR Part 61 Subpart M, *National Emissions Standard for Asbestos*, and 29 CFR 1926.1101, *Toxic and Hazardous Substances: Asbestos*. AFI 32-1052 requires bases to develop an asbestos management plan for the purpose of maintaining a permanent record of the status and condition of ACM in installation facilities, as well as documenting asbestos management efforts. In addition, the instruction requires installations to develop an asbestos operating plan detailing how the installation accomplishes asbestos-related projects. Asbestos is regulated by USEPA with the authority promulgated under the Occupational Safety and Health Act, 29 U.S.C. § 669, et seq. Section 112 of the CAA regulates emissions of asbestos fibers to ambient air. The USEPA policy is to leave asbestos in place if disturbance or removal could pose a health threat.

Asbestos at Pittsburgh IAP ARS is managed in accordance with the *Asbestos Management Program Plan* that was updated in 2001 (PARS 2001a). This plan specifies procedures for the removal, encapsulation, enclosure, and repair activities associated with ACM abatement projects. Additionally, it is designed to protect personnel who live and work on the base from exposure to airborne asbestos fibers as well as to ensure the installation remains in compliance with Federal, state, and local regulations pertaining to asbestos. Not all of the buildings on Pittsburgh IAP ARS have been surveyed to locate, identify, and evaluate all materials containing asbestos (PARS 2001a). Materials that might contain asbestos include roofing materials and floor tiles. Asbestos materials are removed on an as-needed basis to minimize health risks from release of asbestos fibers during normal activities, maintenance, renovation, or demolition.

Lead-Based Paint. The Residential Lead-Based Paint Hazard Reduction Act of 1992, Subtitle B, Section 408 (commonly called Title X), passed by Congress on October 28, 1992, regulates the use and disposal of LBP on Federal facilities. Federal agencies are required to comply with applicable Federal, state, and local laws relating to LBP activities and hazards.

USAF policy and guidance establishes LBP management at USAF facilities. The policy incorporates by reference the requirements of 29 CFR 1910.120, 29 CFR Part 1926, 40 CFR 50.12, 40 CFR Parts 240 through 280, the CAA, and other applicable Federal regulations. Additionally, the policy requires each installation to develop and implement a facility management plan for identifying, evaluating, managing, and abating LBP hazards. LBP at Pittsburgh IAP ARS is managed in accordance with the *Lead-Based Paint Management Plan* that was updated in 2001 (PARS 2001b). Not all of the buildings on the base have been surveyed to locate, identify, and evaluate all materials containing LBP (PARS 2001b).

Environmental Restoration Program

The ERP, formerly known as the Installation Restoration Program, is a subcomponent of the Defense ERP that became law under SARA. The ERP requires each DOD installation to identify, investigate, and clean up hazardous waste disposal or release sites.

Pittsburgh IAP ARS began its ERP in 1984. This consisted of a Phase I Records Search to identify potential sites of concern, which warranted further investigation. In accordance with USAF policy, all ERP sites at the base are addressed in a manner consistent with the CERCLA process. None of the sites are on the National Priorities List (PARS 2002e).

The 2002 *Management Action Plan* (PARS 2002e) was developed to provide a picture of the environmental restoration activities completed at Pittsburgh IAP ARS. Pittsburgh identified seven ERP sites through a rigorous process of site evaluation. Some of these seven sites encompass areas of soil and groundwater contamination stemming from past waste management practices (PARS 2002e). The seven ERP sites have had comprehensive investigations, which concluded that contamination does not pose a risk to human health or the environment.

The projects that are included in the Proposed Action are within or in close proximity to two ERP sites: PL-07 and ST-06 (see Figure 3-2). These sites are described in more detail below.

ST-06. Site ST-06 is the former POL Area at Pittsburgh IAP ARS. The former POL Area was constructed in 1953 and was operational until the fall 1998, at which point a new fuel facility was constructed and placed into service in a new location. The site was used to store JP-4 leaded aviation fuel and aviation lubrication oil. The JP-4 jet fuel was contained in two 25,000-gallon-capacity UST and both of these USTs were emptied and cleaned in 1992. The lubrication oil was stored in a 5,000-gallon capacity UST and it was closed in 1992. As a result of the closure of the two USTs, two ASTs

were constructed and JP-8 was stored after the use of JP-4 was discontinued. In November 1998, the above-mentioned USTs were removed and remediation for contamination began.

After removal of the USTs, the excavation pits were immediately flooded with infiltrating groundwater and surface water. Due to the volume of water and the speed at which it infiltrated, any additional excavation was deemed infeasible. Approximately 1,862 tons of contaminated soil was removed from the site and was disposed of at an approved off-site location. The soil samples collected tested positive for benzene, toluene, and xylene but all of the concentrations were well below the PADEP Medium-Specific Concentrations (MSCs).

A revised remediation plan was developed and implemented to complete the project. This plan included the repair of a French drain at the base of the hillside on the western edge of the former POL Area. This was done to reduce the runoff from the hillside that flowed down on the site. The existing excavations were backfilled with course stone and compacted before the topsoil was put down. To further monitor the contamination at the site, two monitoring wells were installed, and by utilizing two other existing monitoring wells, sampling took place on a quarterly basis for an additional 1 year. Monitoring the wells for four consecutive quarters indicated that any remaining on-site contaminants were not sufficient enough to impact groundwater off site and the PADEP agreed that the groundwater MSCs have been attained and the site was officially closed.

PL-07. PL-07 is the former fuel hydrant system adjacent to the former POL Area (ST-06). PL-07 was first identified in 1990 when a passive gas analysis survey was conducted during the installation of a water utility line. At the time this area was investigated without the use of Defense Environmental Restoration Account funding. The survey identified elevated soil gas levels of benzene, toluene, ethylbenzene, xylenes, and trichloroethylene. To further investigate the site, a Preliminary Assessment/Site Inspection (PA/SI) at PL-07 began in 1994 and was completed in May 1995. The PA/SI revealed no contamination along the pipeline. Portions of the pipeline were removed or grouted during Site ST-06 activities in 1998. Based on the previous investigation of the pipeline, PADEP indicated no additional sampling would be required during pipeline removal if no visible contamination was discovered. No further action is planned for this portion of the pipeline (see Figure 3-2 for specific portion removed). PL-07 is a site considered under the Pennsylvania Multi-Site Agreement Air Force Study Program Pilot Project. The study requires PADEP to review a portion of Air Force no-further-action sites and if PADEP agrees with conclusions of the reviewed sites, all sites within the study program will be formally closed with PADEP concurrence. Site PL-07 has gone through this review process and has been deemed officially closed.

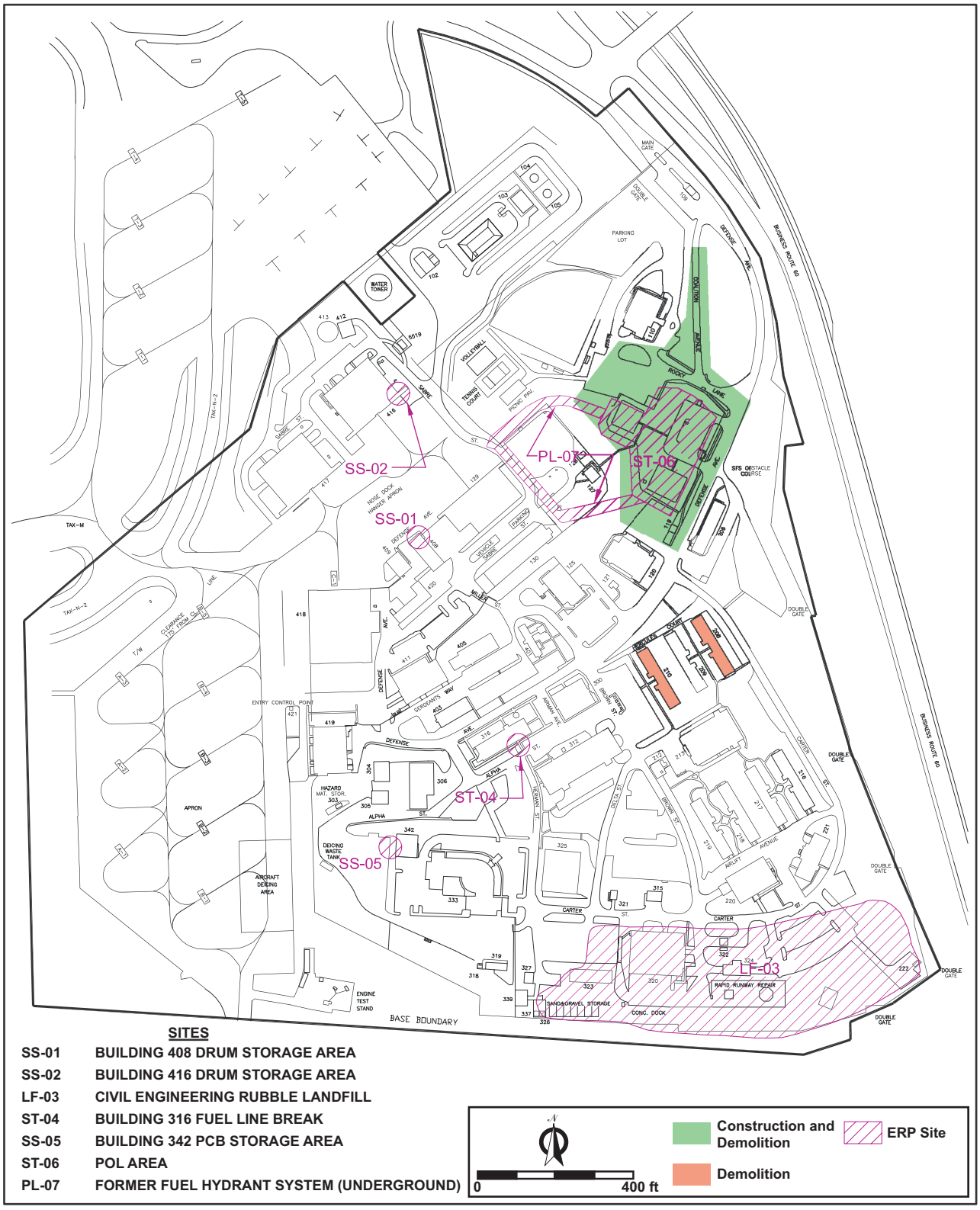

Figure 3-2. Environmental Restoration Program Sites at Pittsburgh IAP ARS

Although ST-06 has been officially closed and no further action is to take place, there is still JP-4 contamination present at these sites. According to ACT II these sites are only to be used for industrial projects; no residential or public facilities, such as playgrounds and convalescent homes, can be built on these sites.

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4. Environmental Consequences

Section 4 presents an evaluation of the environmental impacts that could result from implementing the Proposed Action or the No Action Alternative. This chapter focuses on impacts considered potentially significant. The general approach followed throughout this section is to describe briefly the range of impacts that would occur and then provide a discussion of impacts that are considered significant.

The specific criteria for determining the significance of impacts and assumption for the analyses are presented under each resource area. Significance criteria for most potential impacts were obtained from standard criteria; Federal, state, or local agency guidelines and requirements; or legislative criteria. Long-term implications of the Proposed Action are also presented in this section.

The significance of an action is measured in terms of its context and intensity. The extent to which a proposed action might affect an environmental resource depends on many factors. In some cases, environmental resources can be affected directly; in others, they can be affected indirectly; and in some cases, not affected at all.

The significance of an action is analyzed in several contexts, such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance might vary with the setting of a proposed action.

Intensity refers to the severity of impact. Impacts might be beneficial or adverse. Consideration must be given to whether an impact affects public health or safety and whether it affects areas having unique characteristics, such as historical or cultural resources, wetlands, or ecologically critical areas. The significance of impacts might also depend on the degree of their being controversial or posing highly uncertain, unique, or unknown risks. Significance can be found where an action sets a precedent for future actions having significant effects, as well as in cases involving cumulative impacts. In considering intensity, consideration must be given to the degree to which the action might adversely affect animal or plant species listed as endangered or threatened or their habitat. Finally, in evaluating intensity, consideration must be given to whether an action threatens a violation of a law or regulation imposed for the protection of the environment.

4.1 Air Quality

4.1.1 Significance Criteria

The environmental consequences to local and regional air quality conditions near a proposed Federal action are determined based upon the increases in regulated pollutant emissions relative to existing conditions and ambient air quality. Specifically, the impact in NAAQS "attainment" areas would be considered significant if the net increases in pollutant emissions from the Federal action would result in any one of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Expose sensitive receptors to substantially increased pollutant concentrations
- Represent an increase of 10 percent or more in an affected AQCR emissions inventory
- Exceed any Evaluation Criteria established by a SIP

Effects on air quality in NAAQS "nonattainment" areas are considered significant if the net changes in project-related pollutant emissions result in any of the following scenarios:

- Cause or contribute to a violation of any national or state ambient air quality standard
- Increase the frequency or severity of a violation of any ambient air quality standard
- Delay the attainment of any standard or other milestone contained in the SIP

With respect to the General Conformity Rule, effects on air quality would be considered significant if the proposed Federal action would result in an increase of a nonattainment or maintenance area's emissions inventory by 10 percent or more for one or more nonattainment pollutants, or if such emissions exceed *de minimis* threshold levels established in 40 CFR 93.153(b) for individual nonattainment pollutants or for pollutants for which the area has been redesignated as a maintenance area.

The *de minimis* threshold emissions rates were established by USEPA in the General Conformity Rule to focus analysis requirements on those Federal actions with the potential to have "significant" air quality impacts. Table 4-1 presents these thresholds, by regulated pollutant. These *de minimis* thresholds are similar, in most cases, to the definitions for major stationary sources of criteria and precursors to criteria pollutants under the CAA's New Source Review (NSR) Program (CAA Title I). As shown in Table 4-1, *de minimis* thresholds vary depending upon the severity of the nonattainment

Table 4-1. Conformity *de minimis* Emission Thresholds

Pollutant	Status	Classification	*de minimis* Limit (tpy)
O_3 (measured as NO_x or VOCs)	Nonattainment	Extreme	10
		Severe	25
		Serious	50
		Moderate/marginal (inside ozone transport region)	50 (VOCs)/100 (NO_x)
		All others	100
	Maintenance	Inside ozone transport region	50 (VOCs)/100 (NO_x)
		Outside ozone transport region	100
CO	Nonattainment/ maintenance	All	100
PM_{10}	Nonattainment/ maintenance	Serious	70
		Moderate	100
		Not Applicable	100
SO_2	Nonattainment/ maintenance	Not Applicable	100
NO_x	Nonattainment/ maintenance	Not Applicable	100

Source: 40 CFR 93.153

area classification. No *de minimis* threshold emission rate has been established by USEPA for $PM_{2.5}$; regardless, the Proposed Action is not expected to cause a significant increase in fine particulate emissions.

In addition to the *de minimis* emissions thresholds, Federal PSD regulations define air pollutant emissions to be significant if the source is within 10 kilometers of any Class I area, and emissions would cause an increase in the concentration of any regulated pollutant in the Class I area of 1 $\mu g/m^3$ or more (40 CFR 52.21(b)(23)(iii)).

4.1.2 Environmental Consequences

As discussed in Section 3, the Pittsburgh-Beaver Valley area in Allegheny County, Pennsylvania, is classified as a maintenance area for the 1-hour O_3 standard, a nonattainment area for the 8-hour O_3 standard, and a nonattainment area for $PM_{2.5}$. No long-term air quality effects are expected from the Proposed Action. Regulated pollutant emissions from the Proposed Action would not contribute to or affect local or regional attainment status with NAAQS. The Proposed Action would generate air pollutant emissions as a result of grading, filling, compacting, demolition, and construction

operations, but these emissions would be temporary and would not be expected to generate any off-site effects.

The construction projects would generate total suspended particulate and PM_{10} emissions as fugitive dust from ground-disturbing activities (e.g., grading, demolition, soil piles) and combustion of fuels in construction equipment. Fugitive dust emissions would be greatest during the initial site preparation activities and would vary from day to day depending on the construction phase, level of activity, and prevailing weather conditions. The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked and the level of construction activity.

Fugitive dust emissions for various construction activities were calculated using emissions factors and assumptions published in USEPA's AP-42 Section 11.9 dated October 1998 and Section 13.2 dated December 2003. These estimates assume that 230 working days are available per year for construction (accounting for weekends, weather, and holidays). Using data from the National Oceanic and Atmospheric Administration, the average soil percent moisture was estimated to be 85 percent (NOAA 2002). Wind speed of greater then 12 miles per hour is recorded 30 percent of the time during O_3 season (April 1 to October 31), which is based on average wind rose data and measured speed for the Pittsburgh area (PES 2003).

Construction operations would also result in emissions of criteria pollutants as combustion products from construction equipment, as well as evaporative emissions from architectural coatings and asphalt paving operations. These emissions would be of a temporary nature. The emissions factors and estimates were generated based on guidance provided in *Air Quality Thresholds of Significance* from the Sacramento Metropolitan Air Quality Management District (SMAQMD 2004).

For purposes of this analysis, the project duration and affected project site area that would be disturbed (presented in Section 2) was used to estimate fugitive dust and all other criteria pollutant emissions. The construction emissions presented in Table 4-2 include the estimated annual construction PM_{10} emissions associated with the Proposed Action at Pittsburgh IAP ARS. These emissions would produce slightly elevated short-term PM_{10} ambient air concentrations. However, the effects would be temporary, and would fall off rapidly with distance from the proposed construction site.

Specific information describing the types of construction equipment required for a specific task, the hours the equipment is operated, and the operating conditions vary widely from project to project.

For purposes of analysis, these parameters were estimated using established methodologies for construction and experience with similar types of construction projects. Combustion by-product emissions from construction equipment exhausts were estimated using USEPA's AP-42 emissions factors for heavy-duty, diesel-powered construction equipment.

The construction emissions presented in Table 4-2 include the estimated annual emissions from construction equipment exhaust associated with the Proposed Action. As with fugitive dust emissions, combustion emissions would produce slightly elevated air pollutant concentrations. Early phases of construction projects involve heavier diesel equipment and earthmoving, resulting in higher NO_x and PM_{10} emissions. Later phases of construction projects involve more light gasoline equipment and surface coating, resulting in more CO and VOC emissions. However, the effects would be temporary, fall off rapidly with distance from the proposed construction site, and would not result in any long-term effects.

Since Pittsburgh IAP ARS is within a maintenance area for the 1-hour O_3 standard, within a nonattainment area for the 8-hour O_3 standard, and within a nonattainment area for $PM_{2.5}$, General Conformity Rule requirements are applicable. However, as shown in Table 4-2, the Proposed Action would generate emissions well below conformity *de minimis* limits as specified in 40 CFR 93.153 (see Table 4-1). Therefore, the Proposed Action would not trigger the requirement to prepare a conformity determination report to demonstrate conformity with the General Conformity Rule. Also, since the emissions generated would be below *de minimis* levels, it is reasonable to assume that the temporary construction emissions caused by the Proposed Action would not cause a violation of the NAAQS. In summary, no significant impact on regional or local air quality would result from implementation of the Proposed Action. Appendix B details the emissions factors, calculations, and estimates of construction-related emissions for the Proposed Action.

According to 40 CFR Part 81, there are no Class I areas in the state of Pennsylvania or in the vicinity of Pittsburgh IAP ARS. Therefore, Federal PSD regulations would not apply to the Proposed Action.

Local and regional pollutant effects resulting from direct and indirect emissions from stationary emissions sources under the Proposed Action are addressed through Federal and state permitting program requirements under NSR regulations (40 CFR Parts 51 and 52). Allegheny County, Pennsylvania is in a nonattainment area for fine particle under USEPA's $PM_{2.5}$ standards. Although no *de minimis* thresholds have yet been established for EIAP purposes, the possible effects of the

Table 4-2. Annual Construction Emissions Estimates from the Proposed Action

	NO_x (tpy)	VOC (tpy)	CO (tpy)	SO_x (tpy)	PM_{10} (tpy)
Southwest Pennsylvania Intrastate AQCR 1999 Target Year Emissions Budget	284,548	125,927	895,247	628,123	122,185
CY 2009	11.47	1.91	14.62	0.30	1.83
Percent of Target Year Emissions Budget	0.0040%	0.0015%	0.0016%	0.0000%	0.0015%
CY 2010	11.45	1.90	14.59	0.30	2.80
Percent of Target Year Emissions Budget	0.0040%	0.0015%	0.0016%	0.0000%	0.0023%

Notes: CY – calendar year

$PM_{2.5}$ emissions were not calculated; however, they are assumed to be a subset of PM_{10} emissions.

proposed action in terms of the most frequent sources of fine particle emissions (such as vehicle emissions and Fugitive dust) have been evaluated. There is no reason to believe that the Proposed Action will lead to a significant increase in fine particle levels.

4.2 Noise

4.2.1 Significance Criteria

Noise impact analyses typically evaluate potential changes to existing noise environments that would result from implementation of a proposed action. Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased noise exposure to unacceptable noise levels). Projected noise impacts were evaluated qualitatively for the Proposed Action.

4.2.2 Environmental Consequences

The proposed construction and demolition projects would occur intermittently between CY 2009 and CY 2010. Base policy restricts construction activities to normal business hours (7:00 a.m. and 5:00 p.m, Monday through Friday, excluding holidays). Implementation of the Proposed Action would have minor, temporary effects on the noise environment near the project sites resulting from the use of heavy equipment during construction activities. Nearby facilities would experience muffled construction noise during the workday. However, noise generation would last only for the duration of construction activities, and could be reduced through the use of equipment exhaust mufflers and restriction of construction activity to normal working hours (i.e., between 7:00 a.m. and 5:00 p.m.). Noise produced by construction at the sites would not affect sensitive receptors on or off base. In

addition, the noise environment on base is dominated by military and civilian aircraft overflights. Sound levels associated with construction activities would be comparatively minor to that of an aircraft overflight and would occur in relatively remote areas of the base. Therefore, short-term, minor adverse effects would be expected as a result of the Proposed Action.

Buildings 208 and 210 are within the 70 dB noise contour and the proposed Wing HQ facility would be within the 65 dB noise contour (see Figure 3-1). Construction personnel would be exposed to high noise levels during construction due to the combination of construction equipment and aircraft operations. However, hearing protection would be worn to prevent them from exceeding OSHA requirements for noise exposure. To reduce noise levels from aircraft operations in the proposed Wing HQ facility, noise attenuation features would be included in the design of proposed Wing HQ facility, thereby reducing interior building noise to acceptable levels.

4.3 Safety

4.3.1 Significance Criteria

Impacts were assessed based on direct effects from construction activities, as well as secondary effects, such as environmental contamination. The extent of these secondary effects is situationally dependent and difficult to quantify.

4.3.2 Environmental Consequences

Construction Safety. Short-term, minor adverse effects would be expected. Implementation of the Proposed Action would slightly increase the short-term risk associated with construction contractors performing work at Pittsburgh IAP ARS during the normal workday because the level of such activity would increase. Contractors would be required to establish and maintain safety programs. Projects associated with the Proposed Action would not pose a safety risk to base personnel or to activities at the base. Proposed construction projects would enable the 911 AW to meet future mission objectives at the base, and conduct or meet mission requirements in a safe operating environment.

Fire Hazards and Public Safety. No impacts regarding fire hazards or public safety are expected to occur on base from construction projects planned as part of the Proposed Action.

4.4 Geological Resources

4.4.1 Significance Criteria

Protection of unique geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential impacts of a proposed action on geological resources. Generally, impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering design are incorporated into project development.

Analysis of potential impacts on geological resources typically includes

- Identification and description of resources that could potentially be affected.
- Examination of a proposed action and the potential effects this action might have on the resource.
- Assessment of the significance of potential impacts.
- Provision of mitigation measures in the event that potentially significant impacts are identified.

4.4.2 Environmental Consequences

Under the Proposed Action, construction activities, such as grading, excavating, and recontouring of the soil, would result in soil disturbance. Implementation of best management practices during construction would limit potential impacts resulting from construction activities. Fugitive dust from construction activities would be minimized by watering and soil stockpiling, thereby reducing to negligible levels the total amount of soil exposed. Standard erosion control means (e.g., silt fencing, sediment traps, application of water sprays, and revegetation at disturbed areas) would also reduce potential impacts related to these characteristics. Therefore, impacts on soils at the base would not be significant.

The Proposed Action would not cause or create significant changes to the topography of Pittsburgh IAP ARS or the surrounding area and all permitting requirements for erosion and sediment control would be met. Therefore, no significant impacts on regional or local topography or physiographic features would result from implementation of the Proposed Action.

4.5 Water Resources

4.5.1 Significance Criteria

Significance criteria for water resources impacts are based on water availability, quality, and use; existence of floodplains; and associated regulations. A potential impact on water resources would be significant if it:

- Reduced water availability to existing users or interfere with the supply.
- Created or contributed to overdraft of groundwater basins or exceed safe annual yield of water supply sources.
- Adversely affected water quality or endangered public health by creating or worsening adverse health hazard conditions, threaten or damage unique hydrologic characteristics.
- Violated established laws or regulations that have been adopted to protect or manage water resources of an area.

The impact of flood hazards on a proposed action is significant if such an action is proposed in an area with a high probability of flooding.

4.5.2 Environmental Consequences

Implementation of the Proposed Action is expected to have no adverse effects on water quality. The Proposed Action would increase the impervious surface area and runoff on the base, and therefore potentially affect storm water management (USEPA 2005). Adherence to proper engineering practices and applicable codes and ordinances would reduce storm water runoff-related impacts to a level of insignificance. A municipal separate storm sewer system (MS4) permit will be required under the National Pollution Discharge Elimination System. A MS4 is required to address post-construction run-off from new development and redevelopment (PADEP 2003). Erosion and sedimentation controls would be in place during construction to reduce and control siltation or erosion impacts on areas outside of the construction site.

Construction activities would require the use of water for dust suppression. The volume of water used for dust control would be minimal. No runoff would be expected to result from this process. Therefore, no significant impacts on surface water are expected to result from the use of water for dust control during construction.

Due to the high water table, if a large excavation is necessary to complete the Proposed Action, dewatering might be required to lower the water table in this area (AFCEE 2003).

4.6 Infrastructure and Utilities

4.6.1 Significance Criteria

Impacts on infrastructure are evaluated based on their potential for disruption or improvement of existing levels of service and additional needs for energy and water consumption, wastewater systems, and transportation patterns and circulation. Impacts might arise from physical changes to circulation, construction activities, introduction of construction-related traffic on local roads or changes in daily or peak-hour traffic volumes, and energy needs created by either direct or indirect workforce and population changes related to base activities. In considering the basis for evaluating the significance of impacts on solid waste, two items are considered. These items include evaluating the degree to which the proposed construction projects could affect the existing solid waste management program and the capacity of the area landfill.

Tie-in of main utility lines (i.e., electrical, natural gas, communication, water, and sewer) to the new building would occur concurrently with construction activities. Therefore, ground-disturbing impacts associated with installation are addressed in Section 4.4.2 (Geological Resources).

4.6.2 Environmental Consequences

Transportation Systems. Direct short-term minor adverse impacts on the transportation system would occur because of increased construction traffic as materials and debris are moved to and from sites. Defense Avenue, Carter Street, Coalition Avenue, and other surrounding streets would experience increased traffic during construction. However, the increased traffic congestion would be minor and last only through construction.

Direct and indirect long-term beneficial impacts on transportation systems would occur due to Coalition Avenue being rerouted and Rocky Lane being permanently closed. This would have an overall beneficial impact on traffic because the new roads would be better-designed to handle traffic flow with the new buildings and in accordance with appropriate AT/FP standards.

Electrical Power. The Proposed Action would result in minor beneficial impacts on electrical systems. The proposed construction would tie in to existing electrical infrastructure that is sufficient to meet demands. There would be no net gain of personnel, so energy use would not be expected to increase. The proposed Wing HQ Facility would use sustainable design concepts to the greatest extent possible. Therefore, through the use of sustainable design concepts, the Proposed Action

would likely result in more efficient use of energy than the current facility, though this would be a minor difference compared with total base usage.

Natural Gas and Central Heating and Cooling. The Proposed Action would result in minor beneficial impacts on natural gas and central heating and cooling. The proposed construction would tie in to existing gas lines that are sufficient to meet demands. The proposed Wing HQ Facility would use sustainable design concepts to the greatest extent possible. Therefore, through the use of sustainable design concepts, the Proposed Action would likely result in more efficient use of heating and cooling than the current facility, though this would be a minor difference compared with total base usage. The Proposed Action would require the relocation of a back-up generator that is currently outside of Building 208; this would not be expected to result in environmental impacts.

Communications. The Proposed Action would result in no impacts on communications systems. During the course of construction, various internal and external communications systems would be relocated; this would not be expected to result in environmental impacts.

Water Supply. The Proposed Action would result in minor beneficial impacts on drinking water systems. The proposed construction would tie in to existing water infrastructure that is sufficient to meet demands. There would be no net gain of personnel, so water consumption would not be expected to increase. The proposed Wing HQ Facility would use sustainable design concepts to the greatest extent possible. Therefore, through the use of sustainable design concepts, the Proposed Action would likely result in more efficient use of water than the current facility, though this would be a minor difference compared with total base usage. The Proposed Action would require the relocation of the Main Base Water Metering Facility; this would not be expected to result in environmental impacts.

Sanitary Sewer and Wastewater. The Proposed Action would result in no impacts on the sanitary sewer and wastewater systems. The proposed construction would tie in to the existing sanitary sewer infrastructure that is sufficient to meet demands. There would be no net gain of personnel, so sanitary sewer and wastewater use would not be expected to increase.

Solid Waste. Solid waste generated from the proposed construction activities would consist of building materials such as solid pieces of concrete, metals (conduit, piping, and wiring), and lumber. Contractors are required to recycle C&D to the greatest extent possible as part of base policy, and any recycled C&D waste would be diverted from landfills. The landfill space required at the Arden Landfill or another approved landfill used by the contractor would increase minimally over the next

10 years (CY 2007 to CY 2018). Currently, Arden Landfill has the capacity to handle the additional C&D solid waste stream from the Proposed Action (PARS 2003a). Therefore, implementation of the Proposed Action at Pittsburgh IAP ARS would not impact the solid waste management program at the base or the capacity of the Arden Landfill.

4.7 Hazardous Materials and Wastes

4.7.1 Significance Criteria

Impacts on hazardous materials and wastes management would be considered significant if the Federal action resulted in noncompliance with applicable Federal and PADEP regulations, or increased the amounts generated or procured beyond current Pittsburgh IAP ARS waste management procedures and capacities. Impacts on pollution prevention would be considered significant if the Federal action resulted in worker, resident, or visitor exposure to these materials, or if the action generated quantities of these materials beyond the capability of current management procedures. Impacts on the ERP would be considered significant if the Federal action disturbed (or created) contaminated sites resulting in adverse effects on human health or the environment. Impacts on fuels management would be significant if the established management policies, procedures, and handling capacities could not accommodate the activities associated with the Proposed Action.

4.7.2 Environmental Consequences

Hazardous Materials. Products containing hazardous materials would be procured and used during the proposed construction. It is anticipated that the quantity of products containing hazardous materials used during construction would be minimal and their use would be of short duration. Contractors would be responsible for the management of hazardous materials, which would be handled in accordance with Federal and state regulations. Therefore, hazardous materials management at Pittsburgh IAP ARS would not be impacted by the Proposed Action.

Hazardous Wastes. It is anticipated that the quantity of hazardous wastes generated from proposed construction activities would be negligible. Contractors would turn in hazardous waste to the environmental flight. Therefore, the implementation of the Proposed Action would be negligible to the base's hazardous waste management program.

Pollution Prevention. It is anticipated that the Proposed Action would not impact the Pollution Prevention Program at Pittsburgh IAP ARS. Quantities of hazardous material and chemical purchases, off-base transport of hazardous wastes, disposal of municipal solid wastes, and energy

consumption would continue. Operation of the new Wing HQ Facility would require procurement of products containing hazardous materials, generation of hazardous waste, and consumption of energy consistent with the baseline condition associated with the operation of the Proposed Action. The Pollution Prevention Program at Pittsburgh IAP ARS would accommodate the Proposed Action.

Asbestos and Lead-Based Paint. Specifications for the proposed construction activities and USAF regulations prohibit the use of ACM and LBP for new construction. Buildings 208 and 210, scheduled for demolition, could contain ACM and LBP and therefore, will need to be surveyed by the contractor for LBP and ACM prior to commencing demolition activities. Sampling for ACM and LBP would occur prior to demolition activities and would be handled in accordance with the Pittsburgh IAP ARS Asbestos and Lead-Paint Management Plans and USAF policy.

Environmental Restoration Program. The Proposed Action is within or in close proximity to two ERP sites: ST-06 and PL-07. As discussed in Section 3, although ST-06 and PL-07 have been officially closed and no further action is to take place, there could still be JP-4 contamination present at these sites. These two ERP sites have had comprehensive investigations which concluded that contamination does not pose a risk to human health or the environment. However, because of the potential for construction workers to still encounter contamination from ERP sites during construction, it is recommended that a health and safety plan be prepared in accordance with OSHA requirements prior to commencement of construction activities. Workers performing soil removal activities at ERP Site ST-06 and PL-07 are required to have OSHA 40-hour Hazardous Waste Operations and Emergency (HAZWOPPER) training. In addition to this training, supervisors are required to have an OSHA Site Supervisor certification. In addition, should contamination be encountered, handling, storage, transportation, and disposal activities would be conducted in accordance with applicable Federal, state, and local regulations; AFIs; and Pittsburgh IAP ARS programs and procedures. HAZWOPPER regulations that protect workers and the public at or near a hazardous waste cleanup site are discussed in 29 CFR 1910.120 and 29 CFR 1926. The Hazardous Sites Cleanup Act 108 of 1988 provides the regulations for the cleanup of hazardous waste sites, response and investigation for liability and cost recovery, and established the Hazardous Sites Cleanup Fund. Article VII of the Pennsylvania Code establishes the Hazardous Waste Management regulations (PADEP undated).

4.8 No Action Alternative

Under the No Action Alternative, there would be no change from the existing conditions at the base; Pittsburgh IAP ARS would continue to use the existing Wing HQ Facility and the proposed Wing HQ

Facility would not be constructed. The existing Wing HQ Facility would continue to not meet AT/FP standards and requirements. The use of administrative space in Buildings 208 and 210 is inadequate and these facilities have reached the end of their useful life expectancy. If the No Action Alternative is chosen, Command and Wing support staff would continue to operate with inadequate space requirements, which could affect future mission performance.

The No Action Alternative would not address the security, safety, or space requirements of AFRC and Pittsburgh IAP ARS, or the standards specified in UFC 4-010-01.

5. Cumulative and Adverse Impacts

Cumulative impacts on environmental resources result from incremental effects of proposed actions, when combined with other past, present, and reasonably foreseeable future projects in the area. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (Federal, state, and local) or individuals. Informed decision making is served by consideration of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or anticipated to be implemented in the reasonably foreseeable future.

There might be other actions ongoing during the Proposed Action; however, none are known at this time. In addition, at any given time, there may be multiple facility projects of various size and scope that could be executed.

5.1 Unavoidable Adverse Impacts

Unavoidable adverse impacts would result from implementation of the Proposed Action. None of these impacts would be significant.

Geological Resources. Under the Proposed Action, construction activities, such as grading, excavating, and recontouring of the soil, would result in soil disturbance. Implementation of best management practices during construction would limit potential impacts resulting from construction activities. Standard erosion control means would also reduce potential impacts related to these characteristics. Although unavoidable, impacts on soils at the base is not considered significant.

Hazardous Materials and Wastes. The generation of hazardous materials and wastes is an unavoidable condition associated with the Proposed Action. However, the potential for this would not significantly increase over baseline conditions and, therefore, is not considered significant.

Energy. The use of nonrenewable resources is an unavoidable occurrence, although not considered significant. The Proposed Action would require the use of fossil fuels, a nonrenewable natural resource. Energy supplies, although relatively small, would be committed to the Proposed Action or No Action Alternative.

5.2 Compatibility of the Proposed Action and Alternatives with the Objectives of Federal, Regional, State, and Local Land Use Plans, Policies, and Controls

Impacts on the ground surface as a result of the Proposed Action would occur entirely within the boundaries of Pittsburgh IAP ARS. The Proposed Action would not result in any significant or incompatible land use changes on or off base. The proposed Wing HQ Facility has been sited according to existing land use zones. Consequently, construction of the Wing HQ Facility would not be in conflict with base land use policies or objectives. The Proposed Action would not conflict with any applicable off-base land use ordinances or designated clear zones.

5.3 Relationship Between the Short-term Use of the Environment and Long-term Productivity

Short-term uses of the biophysical components of man's environment include direct construction-related disturbances and direct impacts associated with an increase in population and activity that occurs over a period of less than 5 years. Long-term uses of man's environment include those impacts occurring over a period of more than 5 years, including permanent resource loss.

Several kinds of activities could result in short-term resource uses that compromise long-term productivity. Filling of wetlands or loss of other especially important habitats and consumptive use of high-quality water at nonrenewable rates are examples of actions that affect long-term productivity.

The Proposed Action would not result in an intensification of land use at Pittsburgh IAP ARS or in the surrounding area. Development of the Proposed Action or No Action Alternative would not represent a significant loss of open space. The sites are designated for housing and are not planned for use as open space. Therefore, it is anticipated that neither the Proposed Action nor the No Action Alternative would result in any cumulative land use or aesthetic impacts. Long-term productivity of this site would be increased by the development of the Proposed Action.

5.4 Irreversible and Irretrievable Commitments of Resources

The irreversible environmental changes that would result from implementation of the Proposed Action involve the consumption of material resources, energy resources, land, biological habitat, and human resources. The use of these resources is considered to be permanent.

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources will have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource that cannot be replaced within a reasonable time frame (e.g., energy and minerals).

Material Resources. Material resources utilized for the Proposed Action include building materials (for construction of facilities), concrete and asphalt (for roads), and various material supplies (for infrastructure). Most of the materials that would be consumed are not in short supply, would not limit other unrelated construction activities, and would not be considered significant.

Energy Resources. Energy resources utilized for the Proposed Action would be irretrievably lost. These include petroleum-based products (such as gasoline and diesel), natural gas, and electricity. During construction, gasoline and diesel would be used for the operation of construction vehicles. During operation, gasoline would be used for the operation of private and government-owned vehicles. Natural gas and electricity would be used by operational activities. Consumption of these energy resources would not place a significant demand on their availability in the region. Therefore, no significant impacts would be expected.

Human Resources. The use of human resources for construction and operation is considered an irretrievable loss, only in that it would preclude such personnel from engaging in other work activities. However, the use of human resources for the Proposed Action represents employment opportunities, and is considered beneficial.

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7. References

AFCEE 2003 — Air Force Center for Environmental Excellence (AFCEE) Assistance Team. 2003. *Pittsburgh Air Reserve Station Wing Headquarters Facility*. August 2003.

FAA 1992 — Federal Aviation Administration (FAA). 1992. *Greater Pittsburgh International Airport Part 150 Study Update, Volume I: Noise Exposure Maps*. July 1992. Prepared by Aviation Planning Associates, Inc.

NOAA 2002 — National Oceanic and Atmospheric Administration (NOAA). August 2002. "National Weather Service Climate Prediction Center – Soil Moisture." Available online: <*http://www.cpc.noaa.gov/products/soilmst/w.html*>. Accessed January 17, 2005.

PADEP undated — Pennsylvania Department of Environmental Protection (PADEP). Undated. *Bureau of Land Recycling and Waste Management, Statutory and Regulatory Links.* Available online <*http://www.dep.state.pa.us/dep/deputate/airwaste/wm/RegulatoryLinks.htm*>. Accessed March 10, 2005.

PADEP 2003 — PADEP. 2003. *National Pollution Discharge Elimination System (NPDES) Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4) – Guidance on MS4 Ordinance Provisions.* August 3, 2003.

PADEP 2005 — PADEP. 2002. *An Evaluation of the Pennsylvania Air Quality Program (1992-2001)*. November 2002.

PARS 1997 — Pittsburgh International Airport Air Reserve Station (PARS). 1997. *Pittsburgh International Airport Air Reserve Station 911th Airlift Wing Cultural Resources Management Plan*. October 1997.

PARS 2001a — PARS. 2001. As*bestos Management Plan (AMP) Air Force Reserve Command 911th Airlift Wing Pittsburgh Air Reserve Station Pittsburgh, Pennsylvania*. Prepared by Ecology and Environment, Inc. August 2001.

PARS 2001b — PARS. 2001. *Lead-Based Paint Management Plan (LBPMP) Air Force Reserve Command 911th Airlift Wing Pittsburgh Air Reserve Station Pittsburgh, Pennsylvania*. Prepared by Ecology and Environment, Inc. August 2001.

PARS 2001c — PARS. 2001. *Pittsburgh International Airport-Air Reserve Station General Plan*. December 2001.

PARS 2002a — PARS. 2002. *Pittsburgh International Airport Air Reserve Station Corapolis, Pennsylvania Site ST-06 Former POL Area Remedial Action Completion Report.* February 2004. Prepared by Montgomery Watson Harza.

PARS 2002b — PARS. 2002. *2001 Air Emissions Inventory (Stationary and Mobile Sources) Pittsburgh International Airport-Air Reserve Station, Pennsylvania*. Prepared by Ecology and Environment, Inc. July 2002.

PARS 2002c — PARS. 2002. *Storm Water Pollution Prevention Plan 911th Airlift Wing Pittsburgh International Airport-Air Reserve Station, Pennsylvania*. Prepared by Ecology and Environment, Inc. July 2002.

PARS 2002d — PARS. 2002. *Hazardous Material Emergency Planning and Response (HAZMAT) Plan for Pittsburgh International Airport Air Reserve Station*. Prepared by Ecology and Environment, Inc. April 2002.

PARS 2002e — PARS. 2002. *Management Action Plan*. Prepared by Ecology and Environment, Inc. 2002.

PARS 2003a — PARS. 2003. *Environmental Assessment of Proposed Visiting Quarters Facilities at Pittsburgh International Airport-Air Reserve Station, Pennsylvania*.

PARS 2003b — PARS. 2003. *Final Hazardous Waste Management Plan for Pittsburgh International Airport-Air Reserve Station*. Prepared by Ecology and Environment, Inc. February 2003.

PARS 2003c — PARS. 2003. *Integrated Solid Waste Management Plan for Pittsburgh International Airport Air Reserve Station*. Prepared by Ecology and Environment, Inc. March 2003.

PES 2003 — Pacific Environmental Services (PES). 2003. *Pittsburgh, Pennsylvania Wind Rose*. Available online: <*http://home.pes.com/windroses/wrgifs/94823.GIF*>. Accessed May 2003.

SMAQMD 2004 — Sacramento Metropolitan Air Quality Management District (SMAQMD). 2004. *Guide to Air Quality Assessment in Sacramento County*. July 2004.

USAF 1999 — U.S. Air Force (USAF). 1999. *Air Installation Compatible Use Zone (AICUZ) Handbook, Air Force Handbook 32-7084, Base Comprehensive Planning, Headquarters, US Air Force Directorate of Logistics and Engineering, Bolling Air Force Base, Washington D.C., and Headquarters, US Air Force Center for Environmental Excellence, Brooks Air Force Base, Texas*. March 1999.

USDOT 1980 — U.S. Department of Transportation (USDOT). 1980. *Guidelines for Considering Noise in Land Use Planning and Control, Federal Interagency Committee on Urban Noise*. June 1980.

USEPA 1974 — U.S. Environmental Protection Agency (USEPA). 1974. *Information of Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety.* Publication No. 550/9-74-004, Washington, D.C. March 1974.

USEPA 2004a — USEPA. 2004. "National Ambient Air Quality Standards." Available online: <*http://www.epa.gov/air/criteria.html*>. Accessed January 17, 2005.

USEPA 2004b — USEPA. December 2004. "Green Book Nonattainment Areas for Criteria Pollutants." Available online: <*http://www.epa.gov/oar/oaqps/greenbk/*>. Accessed January 17, 2005.

USEPA 2005 — USEPA. 2005. Written correspondence from Ms. Karen DelGrosso (Environmental Protection Specialist, USEPA) to Mr. Sean McCain (engineering-environmental Management, Inc.) regarding the Proposed Wing Headquarters Facility at Pittsburgh International Airport, Air Reserve Station, Pennsylvania. January 6, 2005.

APPENDIX A

INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING AND RESPONSES

APPENDIX A

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Chairman, Board of Supervisors
Moon Township Municipal Building
1000 Beaver Grade Road
Moon Township, PA 15108

Allegheny Airport Authority
Landside Building
P.O. Box 12370
Pittsburgh, PA 15231

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<Date>

<Name>

<Address>
<City, State, ZIP>

Dear <Name>

The Air Force Reserve Command (AFRC) is preparing an Environmental Assessment (EA) of Proposed Wing Headquarters Facility at Pittsburgh International Airport Air Reserve Station, Pennsylvania. The Description of Proposed Action and Alternatives (DOPAA) is included with this correspondence as Attachment 1.

The environmental impact analysis process for this proposal is being conducted by the AFRC in accordance with the Council on Environmental Quality guidelines pursuant to the requirements of the National Environmental Policy Act of 1969. In accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*, we request your participation by reviewing the attached DOPAA and solicit your comments concerning the proposal and any potential environmental consequences. Please provide written comments or information regarding the action at your earliest convenience but no later than <Date>. Also enclosed is a listing of those Federal, state, and local agencies that have been contacted (see Attachment 2). If there are any additional agencies that you feel should review and comment on the proposal, please include them in your distribution of this letter and the attached materials.

Please address questions concerning or comments on the proposal to engineering-environmental Management, Inc. (e^2M), who is the consultant to AFRC for the EA. The point-of-contact at e^2M is Mr. Sean McCain. He can be reached at (916) 361-6600. Please forward your written comments to Mr. McCain, in care of e^2M, Inc., 3358 Mather Field Road, Rancho Cordova, CA 95670. Thank you for your assistance.

Sincerely,
engineering-environmental Management, Inc.

Sean A. McCain
Project Manager

Attachments:
1. Description of Proposed Action and Alternatives (DOPAA)
2. Distribution List

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Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Bureau for Historic Preservation
Commonwealth Keystone Building, 2nd Floor
400 North Street
Harrisburg, PA 17120-0093
www.phmc.state.pa.us

January 24, 2005

Sean A. McCain
Engineering-Environmental Management, Inc.
3358 Mather Field Road
Rancho Cordova, CA 95670

TO EXPEDITE REVIEW USE
SHP REFERENCE NUMBER

Re: File No. ER 03-2179-003-C
DOD: Environmental Assessment of
Proposed Wing Headquarters
Facility at Pittsburgh International
Airport Air Reserve Station
Pittsburgh, Allegheny County

Dear Mr. McCain:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation. These requirements include consideration of the project's potential effect upon both historic and archaeological resources.

Based on our survey files, which include both archaeological sites and standing structures, there are no National Register eligible or listed historic or archaeological properties in the area of this proposed project. Therefore, your responsibility for consultation with the State Historic Preservation Office for this project is complete. Should you become aware, from any source, that historic or archaeological properties are located at or near the project site, please notify the Bureau for Historic Preservation at (717) 783-8946.

Sincerely,

Kurt W. Carr, Chief
Division of Archaeology &
Protection

KWC/tmw

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APPENDIX B

AIR QUALITY EMISSION CALCULATIONS

Emissions Estimates for EA of Proposed Wing Headquarters Facility at Pittsburgh IAP ARS, PA

Summary	Summarizes total emissions by calendar year. (this worksheet) Pages B-1, B-2, and B-3
Combustion	Estimates emissions from non-road equipment exhaust as well as painting. (one worksheet for each calendar year) Pages B-4, B-5, B-6, and B-7 for 2009; pages B-12, B-13, B-14, and B-15 for 2010
Fugitive	Estimates fine particulate emissions from earthmoving, vehicle traffic, and windblown dust (one worksheet for each calendar year) Pages B-8, B-9, B-10 for 2009; pages B-16, B-17, and B-18 for 2010
Grading	Estimates the number of days of site preparation, to be used for estimating heavy equipment exhaust and earthmoving dust emissions (one worksheet for each calendar year) Page B-11 for 2009; page B-19 for 2010
SPIAQCR Tier Report	USEPA AirData NET air pollution sources (area and source) Tier Report for Southwest Pennsylvania Intrastate Air Quality Control Region (1999) (one worksheet) Page B-20

		NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2009	Combustion	11.47	1.91	14.62	0.30	0.36
(one table for each	Fugitive Dust					1.46
calendar year)	TOTAL CY2009	11.47	1.91	14.62	0.30	1.83

		NOx (ton)	VOC (ton)	CO (ton)	SO2 (ton)	PM10 (ton)
CY2010	Combustion	11.45	1.90	14.59	0.30	0.36
(one table for each	Fugitive Dust					2.44
calendar year)	TOTAL CY2010	11.45	1.90	14.59	0.30	2.80

Since future year budgets were not readily available, actual 1999 air emissions inventories for the counties were used as an approximation of the regional inventory. Because the Proposed Action is several orders of magnitude below significance, the conclusion would be the same, regardless of whether future year budget data set were used.

Southwest Pennsylvania Intrastate Air Quality Control Region (AQCR)

	Point and Area Sources Combined				
Year	NOx (tpy)	VOC (tpy)	CO (tpy)	SO2 (tpy)	PM10 (tpy)
1999	284,548	125,927	895,247	628,123	122,185

Source: USEPA-AirData NET Tier Report (*http://www.epa.gov/air/data/emcatrep.html?st~PA~Pennsylvania*). Site visited on 01/19/05

Determination Significance (Significance Threshold = 10%)

(one table for each year)

	Point and Area Sources Combined				
	NOx (tpy)	VOC (tpy)	CO (tpy)	SO2 (tpy)	PM10 (tpy)
Minimum -1999	284,548	125,927	895,247	628,123	122,185
2009 Emissions	11.47	1.91	14.62	0.30	1.83
Proposed Action %	**0.0040%**	**0.0015%**	**0.0016%**	**0.0000%**	**0.0015%**

Determination Significance (Significance Threshold = 10%)

(one table for each year)

	Point and Area Sources Combined				
	NOx (tpy)	VOC (tpy)	CO (tpy)	SO2 (tpy)	PM10 (tpy)
Minimum -1999	284,548	125,927	895,247	628,123	122,185
2010 Emissions	11.45	1.90	14.59	0.30	2.80
Proposed Action %	**0.0040%**	**0.0015%**	**0.0016%**	**0.0000%**	**0.0023%**

Wing Headquarters Facility at Pittsburgh IAP ARS, PA

Construction Combustion Emissions for CY 2009
Combustion Emissions of VOC, NOx, SO2, CO and PM10 Due to Construction

Includes:

1	50% of Construct Wing Headquarters Facility	15,245	ft^2	0.35	acres
2	100% of Demolish Pavements (Parking Lots and Roadways)	36,000	ft^2	0.83	acres

Total Building Construction Area:	15,245 ft^2	(1)	
Total Demolished Area:	36,000 ft^2	(2)	
Total Paved Area:	0 ft^2		
Total Disturbed Area:	51,245 ft^2	(1, and 2)	
Construction Duration:	1.0 year(s)		
Annual Construction Activity:	230 days/yr	(assume 230 days/year unless project-specific data known)	

Summary of Input Parameters

	Total Area (ft2)	Total Area (acres)	Total Days	
Grading:	51,245	1.18	1	(from grading worksheet)
Paving:	0	0.00	209	
Demolition:	36,000	0.83	209	
Building Construction:	15,245	0.35	209	
Architectural Coating	15,245	0.35	20	(per the SMAQMD "Air Quality of Thresholds of Significance", 1994 version)

NOTE: As a worst case estimate, paving, demolition, and building construction days are each assumed to be the total number of construction days minus grading and coating days;

Emission Factors Used for Construction Equipment

Reference: Guide to Air Quality Assessment in Sacramento County, SMAQMD 2004

Emission factors are taken from Table 3-2 for CY 2005. Assumptions regarding the type and number of equipment are from Table 3-1 unless otherwise noted.

Grading

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Bulldozer	1	29.40	3.66	25.09	0.59	1.17
Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	3	60.51	9.02	70.69	1.21	2.03

Paving

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Roller	1	5.01	0.86	7.34	0.10	0.14
Total per 10 acres of activity	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Haul Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equipment[d]	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Stationary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industrial Saw	1	17.02	2.12	14.52	0.34	0.68
Welder	1	4.48	0.56	3.83	0.09	0.18
Mobile (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Forklift	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Total per 10 acres of activity	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Air Compressor	1	6.83	0.85	5.82	0.14	0.27
Total per 10 acres of activity	1	6.83	0.85	5.82	0.14	0.27

a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.

b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.

c) The SMAQMD 2004 reference does not provide SO_2 emission factors. For this worksheet, SO_2 emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting SO_2 factor was found to be approximately 0.04 times the NOx emission factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NOx emission factor for all other equipment (based on AP-42, Table 3.4-1)

d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	SMAQMD Emission Factors (lb/day)				
		NOx	VOC	CO	SO2**	PM10
Grading Equipment	1	60.51	9.02	70.69	1.21	2.03
Paving Equipment	1	12.94	2.23	18.96	0.26	0.36
Demolition Equipment	1	28.75	4.95	42.14	0.58	0.80
Building Construction	1	67.16	9.98	78.03	2.02	2.27
Air Compressor for Architectural Coating	1	6.83	0.85	5.82	0.14	0.27
Architectural Coating**			10.06			

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Annual Emissions by Activity (lbs/yr)

	NOx	VOC	CO	SO2	PM10
Grading Equipment	77.8	11.6	90.9	1.6	2.6
Paving	2700.8	465.4	3957.2	54.0	75.1
Demolition	6000.5	1033.1	8795.2	120.0	167.0
Building Construction	14017.2	2083.0	16285.9	421.6	473.8
Architectural Coatings	136.6	218.3	116.4	2.7	5.4
Total Emissions (lbs/yr):	**22932.9**	**3811.4**	**29245.7**	**599.9**	**723.9**

Results: Daily and Annual Emission Rates

	NOx	VOC	CO	SO2	PM10
Emissions, average lbs/yr	22932.92	3811.39	29245.66	599.87	723.90
Emissions, tons/yr	11.47	1.91	14.62	0.30	0.36

Wing Headquarters Facility at Pittsburgh IAP ARS, PA

Construction Fugitive Dust Emissions for CY 2009

Calculation of PM10 Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

Acres graded per year:	1.18	acres/yr	(From "Combustion" worksheet)
Grading days/yr:	1.29	days/yr	(From "Grading" worksheet)
Exposed days/yr:	90	assumed days/yr graded area is exposed	
Grading Hours/day:	8	hr/day	
Soil piles area fraction:	0.10	(assumed fraction of site area covered by soil piles)	
Soil percent silt, s:	8.5	%	(mean silt content; expected range: 0.56 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	85	%	(NOAA 2005 http://www.cpc.noaa.gov/products/soilmst/w.html)
Annual rainfall days, p:	150	days/yr	rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)
Wind speed > 12 mph %, I:	29.6	%	Ave. of wind speed at Pittsburgh, PA (http://home.pes.com/windroses/wrgifs/94823.GIF)
Fraction of TSP, J:	0.5	per California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1994, p. A9-99	
Mean vehicle speed, S:	5	mi/hr	(On-site)
Dozer path width:	8	ft	
Qty construction vehicles:	3.00	vehicles	(From "Grading" worksheet)
On-site VMT/vehicle/day:	5	mi/veh/day	(Excluding bulldozer VMT during grading)
PM10 Adjustment Factor k	1.5	lb/VMT	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
PM10 Adjustment Factor a	0.9	(dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
PM10 Adjustment Factor b	0.45	(dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
Mean Vehicle Weight W	40	tons	assumed for aggregate trucks

TSP - Total Suspended Particulate
VMT - Vehicle Miles Traveled

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

Grading duration per acre	8.7	hr/acre	
Bulldozer mileage per acre	1	VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	15	VMT/day	
Construction VMT per acre	16.4	VMT/acre	(Travel on unpaved surfaces within site)

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (5th Edition)
Bulldozing	$0.75(s^{1.5})/(M^{1.4})$	lbs/hr	Table 11.9-1, Overburden
Grading	$(0.60)(0.051)s^{2.0}$	lbs/VMT	Table 11.9-1,
Vehicle Traffic (unpaved roads)	$[(k(s/12)^{a} (W/3)^{b})]\ [(365-P)/365]$	lbs/VMT	Section 13.2.2

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 10/98 and Section 13.2 dated 12/03

Calculation of PM10 Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.04 lbs/hr	8.7 hr/acre	0.30 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.80 lbs/acre
Vehicle Traffic (unpaved roads)	2.08 lbs/VMT	16.4 VMT/acre	34.10 lbs/acre

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1994.

Soil Piles EF = 1.7(s/1.5)[(365 - p)/235](I/15)(J) = (s)(365 - p)(I)(J)/(3110.2941), p. A9-99.

Soil Piles EF = 8.7 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)
Soil Piles EF = 0.87 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM10 Emissions

Source	Emission Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing	0.30 lbs/acre	1.18	NA	0	0.00
Grading	0.80 lbs/acre	1.18	NA	1	0.00
Vehicle Traffic	34.10 lbs/acre	1.18	NA	40	0.02
Erosion of Soil Piles	0.87 lbs/acre/day	1.18	90	92	0.05
Erosion of Graded Surface	26.40 lbs/acre/day	1.18	90	2,795	1.40
TOTAL				2,929	1.46

Soil Disturbance EF: 35.20 lbs/acre
Wind Erosion EF: 27.27 lbs/acre/day

Back calculate to get EF: 1935.37 lbs/acre/grading day

Wing Headquarters Facility at Pittsburgh IAP ARS, PA

Construction (Grading) Schedule for CY 2009

Estimate of time required to grade a specified area.

Input Parameters
Construction area: 1.18 acres/yr (from "Combustion" Worksheet)
Qty Equipment: 3.00 (calculated based on acres disturbed, assuming that up to three machines can effectively work on a 25 acre area, with a minimum of three machines for any job, regardless of area graded)

Assumptions.
Terrain is mostly flat.
An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
200 hp bulldozers are used for site clearing.
300 hp bulldozers are used for stripping, excavation, and backfill.
Vibratory drum rollers are used for compacting.
Stripping, Excavation, Backfill and Compaction require an average of two passes each.
Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 6th Ed., R. S. Means, 1992.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr (project-specific)	Equip-days per year
021 108 0550	Site Clearing	Dozer & rake, medium brush	0.6	acre/day	0.6	1.67	1.18	1.96
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	1.18	0.58
022 242 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	0.59	0.59
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.59	0.24
022 226 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	1.18	0.49
TOTAL								3.86

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 3.86
Qty Equipment: 3.00
Grading days/yr: 1.29

Wing Headquarters Facility at Pittsburgh IAP ARS, PA

Construction Combustion Emissions for CY 2010
Combustion Emissions of VOC, NOx, SO2, CO and PM10 Due to Construction

Includes:

1	50% of Construct Wing Headquarters Facility	15,245	ft2	0.35	acres
2	100% of New Pavements (Parking Lots and Roadways)	42,000	ft2	0.96	acres
3	100% of Demolish Buildings 208 and 210	25,940	ft2	0.60	acres
4	100% of Construct Sidewalks	2,300	ft2	0.05	acres
5					

Total Building Construction Area:	15,245	ft^2	(1)
Total Demolished Area:	25,940	ft^2	(3)
Total Paved Area:	44,300	ft^2	(2 and 4)
Total Disturbed Area:	85,485	ft^2	(1, 2, 3, and 4)
Construction Duration:	1.0	year(s)	
Annual Construction Activity:	230	days/yr	(assume 230 days/year unless project-specific data known)

Summary of Input Parameters

	Total Area (ft2)	Total Area (acres)	Total Days	
Grading:	85,485	1.96	2	(from grading worksheet)
Paving:	44,300	1.02	208	
Demolition:	25,940	0.60	208	
Building Construction:	15,245	0.35	208	
Architectural Coating	15,245	0.35	20	(per the SMAQMD "Air Quality of Thresholds of Significance", 1994 version)

NOTE: As a worst case estimate, paving, demolition, and building construction days are each assumed to be the total number of construction days minus grading and coating days;

Emission Factors Used for Construction Equipment

Reference: Guide to Air Quality Assessment in Sacramento County, SMAQMD 2004

Emission factors are taken from Table 3-2 for CY 2005. Assumptions regarding the type and number of equipment are from Table 3-1 unless otherwise noted.

Grading

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Bulldozer	1	29.40	3.66	25.09	0.59	1.17
Motor Grader	1	10.22	1.76	14.98	0.20	0.28
Water Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	3	60.51	9.02	70.69	1.21	2.03

Paving

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Paver	1	7.93	1.37	11.62	0.16	0.22
Roller	1	5.01	0.86	7.34	0.10	0.14
Total per 10 acres of activity	2	12.94	2.23	18.96	0.26	0.36

Demolition

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Loader	1	7.86	1.35	11.52	0.16	0.22
Haul Truck	1	20.89	3.60	30.62	0.42	0.58
Total per 10 acres of activity	2	28.75	4.95	42.14	0.58	0.80

Building Construction

Equipment[d]	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Stationary						
Generator Set	1	11.83	1.47	10.09	0.24	0.47
Industrial Saw	1	17.02	2.12	14.52	0.34	0.68
Welder	1	4.48	0.56	3.83	0.09	0.18
Mobile (non-road)						
Truck	1	20.89	3.60	30.62	0.84	0.58
Forklift	1	4.57	0.79	6.70	0.18	0.13
Crane	1	8.37	1.44	12.27	0.33	0.23
Total per 10 acres of activity	6	67.16	9.98	78.03	2.02	2.27

Note: Footnotes for tables are on following page

Architectural Coatings

Equipment	No. Reqd.[a] per 10 acres	NOx (lb/day)	VOC[b] (lb/day)	CO (lb/day)	SO_2[c]	PM_{10} (lb/day)
Air Compressor	1	6.83	0.85	5.82	0.14	0.27
Total per 10 acres of activity	1	6.83	0.85	5.82	0.14	0.27

a) The SMAQMD 2004 guidance suggests a default equipment fleet for each activity, assuming 10 acres of that activity, (e.g., 10 acres of grading, 10 acres of paving, etc.). The default equipment fleet is increased for each 10 acre increment in the size of the construction project. That is, a 26 acre project would round to 30 acres and the fleet size would be three times the default fleet for a 10 acre project.

b) The SMAQMD 2004 reference lists emission factors for reactive organic gas (ROG). For the purposes of this worksheet ROG = VOC.

c) The SMAQMD 2004 reference does not provide SO_2 emission factors. For this worksheet, SO_2 emissions have been estimated based on approximate fuel use rate for diesel equipment and the assumption of 500 ppm sulfur diesel fuel. For the average of the equipment fleet, the resulting SO_2 factor was found to be approximately 0.04 times the NOx emission factor for the mobile equipment (based upon 2002 USAF IERA "Air Emissions Inventory Guidance") and 0.02 times the NOx emission factor for all other equipment (based on AP-42, Table 3.4-1)

d) Typical equipment fleet for building construction was not itemized in SMAQMD 2004 guidance. The equipment list above was assumed based on SMAQMD 1994 guidance.

PROJECT-SPECIFIC EMISSION FACTOR SUMMARY

Source	Equipment Multiplier*	SMAQMD Emission Factors (lb/day)				
		NOx	VOC	CO	SO2**	PM10
Grading Equipment	1	60.51	9.02	70.69	1.21	2.03
Paving Equipment	1	12.94	2.23	18.96	0.26	0.36
Demolition Equipment	1	28.75	4.95	42.14	0.58	0.80
Building Construction	1	67.16	9.98	78.03	2.02	2.27
Air Compressor for Architectural Coating	1	6.83	0.85	5.82	0.14	0.27
Architectural Coating**			10.06			

*The equipment multiplier is an integer that represents units of 10 acres for purposes of estimating the number of equipment required for the project

**Emission factor is from the evaporation of solvents during painting, per "Air Quality Thresholds of Significance", SMAQMD, 1994

Annual Emissions by Activity (lbs/yr)

	NOx	VOC	CO	SO2	PM10
Grading Equipment	129.8	19.4	151.7	2.6	4.4
Paving	2689.6	463.5	3940.9	53.8	74.8
Demolition	5975.8	1028.9	8759.0	119.5	166.3
Building Construction	13959.5	2074.4	16218.9	419.8	471.8
Architectural Coatings	136.6	218.3	116.4	2.7	5.4
Total Emissions (lbs/yr):	**22891.4**	**3804.4**	**29186.8**	**598.5**	**722.7**

Results: Daily and Annual Emission Rates

	NOx	VOC	CO	SO2	PM10
Emissions, average lbs/year	22891.37	3804.39	29186.84	598.46	722.70
Emissions, tons/yr	11.45	1.90	14.59	0.30	0.36

Wing Headquarters Facility at Pittsburgh IAP ARS, PA

Construction Fugitive Dust Emissions for CY 2010

Calculation of PM10 Emissions Due to Site Preparation (Uncontrolled).

User Input Parameters / Assumptions

Acres graded per year:	1.96	acres/yr	(From "Combustion" worksheet)
Grading days/yr:	2.15	days/yr	(From "Grading" worksheet)
Exposed days/yr:	90	assumed days/yr graded area is exposed	
Grading Hours/day:	8	hr/day	
Soil piles area fraction:	0.10	(assumed fraction of site area covered by soil piles)	
Soil percent silt, s:	8.5	%	(mean silt content; expected range: 0.56 to 23, AP-42 Table 13.2.2-1)
Soil percent moisture, M:	85	%	(NOAA 2005 http://www.cpc.noaa.gov/products/soilmst/w.html)
Annual rainfall days, p:	150	days/yr	rainfall exceeds 0.01 inch/day (AP-42 Fig 13.2.2-1)
Wind speed > 12 mph %, I:	29.6	%	Ave. of wind speed at Pittsburgh, PA (http://home.pes.com/windroses/wrgifs/94823.GIF)
Fraction of TSP, J:	0.5	per California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1994, p. A9-99	
Mean vehicle speed, S:	5	mi/hr	(On-site)
Dozer path width:	8	ft	
Qty construction vehicles:	3.00	vehicles	(From "Grading" worksheet)
On-site VMT/vehicle/day:	5	mi/veh/day	(Excluding bulldozer VMT during grading)
PM10 Adjustment Factor k	1.5	lb/VMT	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
PM10 Adjustment Factor a	0.9	(dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
PM10 Adjustment Factor b	0.45	(dimensionless)	(AP-42 Table 13.2.2-2 12/03 for PM10 for unpaved roads)
Mean Vehicle Weight W	40	tons	assumed for aggregate trucks

TSP - Total Suspended Particulate
VMT - Vehicle Miles Traveled

Emissions Due to Soil Disturbance Activities

Operation Parameters (Calculated from User Inputs)

Grading duration per acre	8.7	hr/acre	
Bulldozer mileage per acre	1	VMT/acre	(Miles traveled by bulldozer during grading)
Construction VMT per day	15	VMT/day	
Construction VMT per acre	16.4	VMT/acre	(Travel on unpaved surfaces within site)

Equations Used (Corrected for PM10)

Operation	Empirical Equation	Units	AP-42 Section (5th Edition)
Bulldozing	$0.75(s^{1.5})/(M^{1.4})$	lbs/hr	Table 11.9-1, Overburden
Grading	$(0.60)(0.051)s^{2.0}$	lbs/VMT	Table 11.9-1,
Vehicle Traffic (unpaved roads)	$[(k(s/12)^{a} (W/3)^{b})]\ [(365-P)/365]$	lbs/VMT	Section 13.2.2

Source: Compilation of Air Pollutant Emission Factors, Vol. I, USEPA AP-42, Section 11.9 dated 10/98 and Section 13.2 dated 12/03

Calculation of PM10 Emission Factors for Each Operation

Operation	Emission Factor (mass/ unit)	Operation Parameter	Emission Factor (lbs/ acre)
Bulldozing	0.04 lbs/hr	8.7 hr/acre	0.30 lbs/acre
Grading	0.77 lbs/VMT	1 VMT/acre	0.80 lbs/acre
Vehicle Traffic (unpaved roads)	2.08 lbs/VMT	16.4 VMT/acre	34.10 lbs/acre

Emissions Due to Wind Erosion of Soil Piles and Exposed Graded Surface

Reference: California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1994.

Soil Piles EF = 1.7(s/1.5)[(365 - p)/235](I/15)(J) = (s)(365 - p)(I)(J)/(3110.2941), p. A9-99.

Soil Piles EF = 8.7 lbs/day/acre covered by soil piles

Consider soil piles area fraction so that EF applies to graded area

Soil piles area fraction: 0.10 (Fraction of site area covered by soil piles)
Soil Piles EF = 0.87 lbs/day/acres graded

Graded Surface EF = 26.4 lbs/day/acre (recommended in CEQA Manual, p. A9-93).

Calculation of Annual PM10 Emissions

Source	Emission Factor	Graded Acres/yr	Exposed days/yr	Emissions lbs/yr	Emissions tons/yr
Bulldozing	0.30 lbs/acre	1.96	NA	1	0.00
Grading	0.80 lbs/acre	1.96	NA	2	0.00
Vehicle Traffic	34.10 lbs/acre	1.96	NA	67	0.03
Erosion of Soil Piles	0.87 lbs/acre/day	1.96	90	154	0.08
Erosion of Graded Surface	26.40 lbs/acre/day	1.96	90	4,663	2.33
TOTAL				4,886	2.44

Soil Disturbance EF: 35.20 lbs/acre
Wind Erosion EF: 27.27 lbs/acre/day

Back calculate to get EF: 1160.18 lbs/acre/grading day

Wing Headquarters Facility at Pittsburgh IAP ARS, PA

Construction (Grading) Schedule for CY 2010

Estimate of time required to grade a specified area.

Input Parameters
Construction area: 1.96 acres/yr (from "Combustion" Worksheet)
Qty Equipment: 3.00 (calculated based on acres disturbed, assuming that up to three machines can effectively work on a 25 acre area, with a minimum of three machines for any job, regardless of area graded)

Assumptions.
Terrain is mostly flat.
An average of 6" soil is excavated from one half of the site and backfilled to the other half of the site; no soil is hauled off-site or borrowed.
200 hp bulldozers are used for site clearing.
300 hp bulldozers are used for stripping, excavation, and backfill.
Vibratory drum rollers are used for compacting.
Stripping, Excavation, Backfill and Compaction require an average of two passes each.
Excavation and Backfill are assumed to involve only half of the site.

Calculation of days required for one piece of equipment to grade the specified area.

Reference: Means Heavy Construction Cost Data, 6th Ed., R. S. Means, 1992.

Means Line No.	Operation	Description	Output	Units	Acres per equip-day)	equip-days per acre	Acres/yr (project-specific)	Equip-days per year
021 108 0550	Site Clearing	Dozer & rake, medium brush	0.6	acre/day	0.6	1.67	1.96	3.27
021 144 0300	Stripping	Topsoil & stockpiling, adverse soil	1,650	cu. yd/day	2.05	0.49	1.96	0.96
022 242 5220	Excavation	Bulk, open site, common earth, 150' haul	800	cu. yd/day	0.99	1.01	0.98	0.99
022 208 5220	Backfill	Structural, common earth, 150' haul	1,950	cu. yd/day	2.42	0.41	0.98	0.41
022 226 5020	Compaction	Vibrating roller, 6 " lifts, 3 passes	1,950	cu. yd/day	2.42	0.41	1.96	0.81
TOTAL								6.44

Calculation of days required for the indicated pieces of equipment to grade the designated acreage.

(Equip)(day)/yr: 6.44
Qty Equipment: 3.00
Grading days/yr: 2.15

Wing Headquarters Facility at Pittsburgh IAP ARS, PA
Southwest Pennsylvania Intrastate Air Quality Control Region (SPIAQCR)

			Area Source Emissions						Point Source Emissions					
Row #	State	County	CO	NOx	PM10	PM2.5	SO2	VOC	CO	NOx	PM10	PM2.5	SO2	VOC
SORT														
1	PA	Allegheny Co	400,984	61,901	15,291	6,956	6,944	56,592	8,974	19,682	7,776	6,335	46,442	3,719
2	PA	Armstrong Co	24,131	3,112	4,449	1,294	429	3,397	1,782	24,601	13,352	11,441	189,922	351
3	PA	Beaver Co	55,816	7,854	5,450	1,888	1,299	8,351	32,694	30,794	5,286	3,644	39,733	922
4	PA	Butler Co	66,275	7,802	8,840	2,705	1,056	8,387	1,938	2,278	554	393	3,382	864
5	PA	Fayette Co	47,442	6,755	7,338	2,345	1,728	7,004	32.4	391	83	65.5	263	82.3
6	PA	Greene Co	18,691	3,504	2,621	782	362	2,210	1,773	21,164	9,267	8,765	142,474	672
7	PA	Indiana Co	28,214	3,964	5,760	1,657	854	4,392	2,471	50,181	12,126	10,753	182,116	408
8	PA	Washington Co	74,489	10,747	9,218	3,033	1,471	9,826	1,341	10,882	1,023	860	6,192	235
9	PA	Westmoreland Co	126,485	16,002	13,347	4,548	2,916	17,634	1,713	2,933	405	352	539	881
Grand Total			842,528	121,642	72,313	25,208	17,060	117,793	52,719	162,906	49,872	42,609	611,063	8,134

SOURCE:
http://www.epa.gov/air/data/emcatrep.html?st~PA~Pennsylvania
USEPA - AirData NET Tier Report
*Net Air pollution sources (area and point) in tons per year (1999)
Site visited on January 19, 2005

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